FOOD SHORTAGE & AGRICULTURE

BY

M. K. GANDHI

NAVAJIVAN PUBLISHING HOUSE
AHMEDABAD

First Edition, May, 1949 : 5,000 Copies
Two Rupees Eight Annas

Printed and Published by Jivanji Dahyabhai Desai
Navajivan Press, Kalupur, Ahmedabad.

EDITOR'S NOTE

The aim of this book is to bring together Gandhiji's writings and the writings also of others published in his weekly, the *Harijan* on how we should cope with the food shortage, and in this connection also, on what should be done to improve our agriculture.

Most of his suggestions regarding food shortage were made in 1946 and 1947, although food scarcity of more than the usual type existed in India for three or four years before that date. The reason for his silence between 1942 and 1946 is that it was only in 1946 that he was permitted by the Government to resume publication of the *Harijan* which remained under a Government ban from August, 1942.

One thought which runs through all Gandhiji's writings is that we must be self-reliant, and solve our problems ourselves without looking for aid from outside. In regard to food shortage, he is convinced that if all of us, rich and poor, agriculturist and trader, Government and the people did our part, there will be enough food in the country and no need to beg for it from abroad. An agricultural country like India should, he holds, be able to feed itself, and not only itself but also help to feed others.

This passionate belief in self-dependence is what underlies also his intense dislike of Government control over food. He cannot tolerate the idea of the people being made to depend on the Government for this most primary need of life. He can understand the Government stepping in in times of emergency, like war, to tide over the effects of economic dislocation. But to continue control and rationing even when the war is long over, he regards as positively wrong. The people should stand on their own legs and not be spoon-fed by the Government. Otherwise, he believes, democracy will be a mockery and Swaraj a

delusion. True democracy requires that the people should manage their own affairs. The less there is of Government, therefore, the better. Instead of this, food control increases the dominance of the Government over the life of the people. Hence his uncompromising opposition to control.

Besides, food control has led to corruption and black-marketing. Never before has the business morality of our people been so low as it is under control, when traders hoard up stock and thus increase scarcity, sell in the black market and pile up huge fortunes for themselves. The temptation for Government officers, both high and low, to receive bribes has increased with the advent of control, and many are falling a prey to it. Naturally both these interests would have the controls remain, and so work hard against their withdrawal. But if Gandhiji's advice is to be followed, it would seem that the Government would have to be firm and remove the controls resolutely. This may lead to high prices temporarily, but Gandhiji held that they would settle down soon to a more normal level. He believed in the end that there really was no food shortage beyond what was created by hoarders under the food control policy of the Government.

Under Agriculture have been included here from the *Harijan* whatever hints could be found generally regarding methods of improving agriculture even if they were not made from the point of view of meeting food scarcity. So far as agriculture went, Gandhiji seemed to concern himself only with the question of increasing soil fertility by the use of organic manures and with improving our cattle, apparently because other problems relating to agriculture were too big to be tackled by the individual immediately without State aid. Consequently the suggestions contained here relate primarily to these two topics. They are however of great importance, especially as the tendency in our country today seems to be towards the use of chemical fertilizers and tractors, and away from a realization of the vital importance of tackling problems

relating to cattle both for supplying us with milk as well as with manure and motive power for agriculture. As Gandhiji himself did not write much in regard to agriculture it seemed well to include more matter on this topic by others.

Writings earlier than 1942 have been included if they were thought to have a valuable bearing on the problems dealt with in this book.

Articles written by others are given as Part II of this book. Gandhiji published them as they were in consonance with his way of thinking. So they may be taken as having his approval and sanction. Only one article written by Gandhiji himself, viz. the one entitled *Indivdual or Collective*? has been included in this Part, as topically it fitted in better here. It forms the last chapter of this book.

Whether written by Gandhiji or by others, an entire article has been reproduced only when it is relevant to the topics included in this volume. Otherwise only such portions of the article as are relevant are given. The original titles have as a rule been retained. Only in one or two cases have they been modified or altered.

If our devotion to Gandhiji is sincere, both the Government and the people should try to put his teachings into effect. Besides, the problems of food shortage and agriculture are confronting us everyday and on all sides, and require to be tackled immediately. It is to help in these directions that this book has been compiled.

Bombay, 12-4-1949

BHARATAN KUMARAPPA

CONTENTS

Part I

NON-ENGLISH WORDS WITH MEANINGS

Ahimsak : (ahimsaka) non-violent
Annadata : (annadaataa) a giver of food
Arhar : (arahar) a kind of pulse
Atta : (aataa) flour
Bajra : (baajaraa) bajri
Batta : (battaa) discount
Bigha : (bighaa) a measure of land in India
Chakki : (chakkee) a grinding stone
Chapati : (chapaatee) a cake
Copra : (koparaa) cocoa-nut
Dal : (daal) pulse
Deva : (deva) god
Devi : (devee) goddess
Duragraha : (duraagraha) clinging to untruth, obstinacy
Fasal : (fasal) season
Gawala : (gawaala) shepherd
Ganji : (ganjee) stack
Ghani : (ghaanee) oil-press
Gita : (geetaa) Hindus' sacred book
Goshala : (goshaalaa) dairy, literally cow-house
Gram : (graama) a village
Gur : (goor) jaggery
Hadda : (haddaa) a centre
Halwai : (halawaace) a confectioner
Kachcha : (kachchaa) raw, built for temporary use
Khandi : (khandee) a measure of twenty maunds
Kharif (crop) : (khareef) monsoon (crop)
Khurpi : (khurpee) a small implement for weeding
Kisan : (kisaan) a peasant
Mahura : (mahuraa) } a kind of flower from which
Mowra : (moharaa) } liquor is extracted
Mali : (maalee) a gardener

Mandi : (mandee) a store-house, bazaar
Moong dal : (moong dal) a kind of pulse
Musoor : (masoor) a kind of pulse
Nullah : (nallaa) watercourse
Panchayat : (panchaayat) a council of five members
Panchayat Raj : (panchaayat raaj) a rule of the council of five
Pandit : (pandita) a learned person
Penda : (pendaa) a kind of Indian sweetmeat
Pinjrapole : (pinjaraapol) } an institution for sheltering
Panjrapole : (panjaraapol) } crippled and aged cows
Puri : (puree) a small cake
Rabi (crop) : (raabee) winter (crop)
Rasgulla : (rasagullaa) an Indian sweetmeat
Roti : (rotee) a cake
Sarson : (sarasan) mustard
Satyagraha : (satyaagraha) non-violent resistance to evil through clinging to truth
Shakkar : (shakkar) sugar
Suran : (suran) a kind of Indian fruit vegetable
Sowcar : (saavakaar) a moneylender
Thali : (thaalee) a tray
Turdal : (toordal) a kind of pulse
Toddy : (tadee) liquor made from the juice of palm tree
Urad : (udada) a kind of pulse
Vanaspati : (vanaspatee) vegetable ghee

FOOD SHORTAGE AND AGRICULTURE

PART I

A. FOOD SHORTAGE

1
REAL WAR EFFORT

The greatest need of the immediate present is to feed the hungry and clothe the naked. There is already scarcity in the land both of food and clothing. As the war progresses, both the scarcities must increase. There are no imports from outside, either of foodstuff or of cloth. The well-to-do may not feel the pinch as yet or at all, but the poor are feeling it now. The well-to-do live on the poor. There is no other way. What is then their duty? He who saves gains as much, that is to say, he produces as much. Hence those who feel for the poor, those who would be one with them must curtail their wants. There are many ways. I shall only mention some here. There is much, too much food eaten and wasted by the well-to-do.

Use one grain at a time. *Chapati*, rice and pulses, milk, ghee, *gur*, and oil are used in ordinary households besides vegetables and fruit. I regard this as an unhealthy combination. Those who get animal protein in the way of milk, cheese, eggs or meat need not use pulses at all. The poor people get only vegetable protein. If the well-to-do give up pulses and oils, they set free these two essentials for the poor who get neither animal protein nor animal fat. Then the grain eaten should not be sloppy. Half the quantity suffices when it is eaten dry and not dipped in any gravy. It is well to eat it with raw salads such as onion, carrot, radish, salad leaves, tomatoes. An ounce or two of salads serves the purpose of eight ounces of cooked vegetables. *Chapatis* or bread should not be eaten with milk. To begin with, one meal may be raw vegetables and *chapati* or bread, and the other cooked vegetables with milk or curds.

Sweet dishes should be eliminated altogether. Instead *gur* or sugar in small quantities may be taken with milk or bread or by itself.

Fresh fruit is good to eat, but only a little is necessary to give tone to the system. It is an expensive article, and an over-indulgence by the well-to-do has deprived the poor and the ailing of an article which they need much more than the well-to-do.

Any medical man who has studied the science of dietetics will certify that what I have suggested can do no harm to the body, on the contrary it must conduce to better health.

This is only one way of conserving foodstuff. It is obvious. But by itself it cannot produce much visible effect.

Grain-dealers have to shed their greed and the habit of making as much profit as possible. They must be satisfied with as little as possible. They run the risk of being looted, if they do not gain the credit of being keepers of grain for the sake of the poor. They should be in touch with the people in their neighbourhood. Congressmen have to visit grain-dealers within their beat and give them the message of the time.

By far the most important part of the work consists in educating the villagers to keep what they have and to induce cultivation of fresh crops wherever water is available. This requires widespread and intelligent propaganda. It is not generally known that bananas, potatoes, beetroot, yam and *suran*, and in a measure pumpkin are a food crop easily grown. They can take the place of bread in time of need.

There is too scarcity of money. There may be grain available but no money to buy it with. There is no money because there is no employment. This has to be found. Spinning is the readiest and the handiest. But local needs may supply other sources of labour. Each available source has to be tapped so that there is no want of employment. Only the lazy ones need and must starve. Patient handling will induce even this class to shed their laziness.

On the way to Kashi, 19-1-'42

Harijan, 25-1-1942

2

HOW TO WARD OFF STARVATION ?

Q. Is it not far more important today to find some solution for the shortage and high prices of foodstuffs than to organize civic guards ? Speeches will not quench the fire of hunger. And we have neither enough capitalists nor capitalists with the right ideals to set things right.

A. It should be part and parcel of the work of the civic guards to protect the people as far as possible from hunger and exploitation. I have already given some advice as to how to economize in food during times of stress. Such economy should begin from today.

1. Food should be regulated scientifically so that there is no waste and a maximum of economy.

2. Whatever reasonable foodstuffs can be sown should be planted at once.

3. Use should be made of herbs etc. which grow wild and which can be eaten with advantage. Research therein is necessary.

4. No one must remain idle. If he cannot find employment, he should provide work for himself, such as spinning.

5. I fear that if the war does not come to a speedy end and the Japanese invade India, it will become difficult or even impossible to transport foodstuffs. Therefore, if there happens to be any surplus anywhere, efforts should be made to send it where it is most needed.

I am aware that all this is no easy task. But I see no other way out of the difficulty.

Sevagram, 16-3-'42 (From *Harijansevak*)

Harijan 22-3-1942

3

PRESS STATEMENT

The food situation brought the Private Secretary of H. E. the Viceroy to me. Could I say something in order to lift the question out of the political arena and out of the general distrust of Government intentions and policy? As the matter brooks no delay I give here the purport of what I said. So far as the Congress policy is concerned His Excellency should invite Maulanasahib and if he cannot come ask him to name his deputy. I personally feel that the present irresponsible executive should be immediately replaced by a responsible one chosen from the elected members of the Central Legislative. I also personally feel that this responsibility should be shouldered by the elected members of the Central Legislature irrespective of parties, for famine of cloth and food is common to the millions of India. Whether the Government can accept the suggestion and whether the different political parties that compose the Central Legislature consider it practicable or not is more than I can say. But this much I can say without fear of contradiction. I have little doubt that if the mercantile community and the official world become honest, if only in face of the impending calamity, we are such a vast country that we can just tide over the difficulty even if no help comes from the outside world, which is itself groaning. Grain and cloth dealers must not hoard, must not speculate. Food should be grown on all cultivable areas wherever water is or is made available. Flower gardens should be used for growing food crops. This has been done during the period of war. The present is, in some respects, worse than the war period. Before we have eaten up the grain we have in stock we must economize like misers. All ceremonial functions should be stopped. Women can play the highest part in the alleviation of the present distress by economizing in their

households. In nine tenths of our activity we can manage our daily affairs without the aid of the Government, whatever its colour may be, if only it will refrain from interfering with the people. Panic must be avoided at all costs. We must refuse to die before death actually takes toll, and think of the skeletons of India, and do the least little thing we may do to help, and all will be well with India. Let us not hypnotize ourselves into the belief that because we can indulge ourselves, our next-door neighbour can do likewise.

Harijan, 17-2-1946

4

FAMINE

During my wanderings in Bengal, Assam and Madras I heard tales of distress due to shortage of food and cloth. Reports come to me from other parts of India. They support the same tale. Dr. Rajendraprasad tells me that the Government report expressing fear of shortage of food immediately doubled the market price. This is a bad sign. Such speculation should be a thing of the past. The mercantile community should be competent to curb such greed. Let them not add to the distress caused by Government mistakes or incompetence. There are mercantile associations and chambers. If they act patriotically, they can help most to prevent panic and speculation.

It is the fashion to blame nature for famine. Scarcity of rain is by no means a monopoly of India. In other countries, though people welcome rains they have made themselves fairly independent of rainfall during a season or two. Here, Government have used themselves and the public to the idea that famines come when there is a shortage of rainfall. Had the mind been framed otherwise, they would have made adequate provision for short falls. They only tinkered with the problem and naturally so. For, the official world was taught to think no better. Originality there could be none in a close mono-

poly organization like the Government of India. It is the largest autocracy the world has known. Democracy has been reserved only for Great Britain. And when it rules and exploits millions belonging to other races, it becomes an unmitigated evil. It corrupts the whole island with the idea that such exploitation is the best thing for an enlightened democracy to do. It would be well to remember this fundamental fact, if I have correctly estimated it. If we recognize this, while dealing with the immediate problem we shall be patient with the present actors. There is no call here for patience with the evil. The distinction will enable us the better to deal with the evil.

We must then first put our own house in order as far as may be, and at the same time demand from the foreign Government that since they mean what they say, let them at once replace the irresponsible executive with the elected and responsible members from the Central Legislature, however archaic and based only on a limited franchise it may be. There is nothing to prevent the Viceroy from doing this today. I do not propose to answer the difficulties in anticipation. "Where there's a will, there's a way." This one act will restore confidence and allay panic.

"Grow more food" was not a bad cry during the war. It is a greater necessity now. This can be best done only by a national executive. Even its mistakes will not loom as large as those of a nominated executive, however able the latter may be. As it is, even their ability and integrity are in question—rightly so or wrongly is beside the point in this connection. Everything possible should be done to draw water from the bowels of the earth. There is talent enough in this country for the purpose. Provincial selfishness should give place to the national want.

In addition to, not in the place of these measures, grain should be imported from wherever it can be had.

Sevagram, 10-2-'46

Harijan, 17-2-1946

5

WHAT OUGHT TO BE DONE

Food crisis should be regarded as a certainty. In the circumstances the following things should be attended to at once :

1. Every person should confine his daily wants regarding food to the minimum, consistent with his or her health requirements ; and where, as in cities, milk, vegetables, oil and fruit are available, grains and pulses should be reduced as they easily can be. Starch can be derived from starchy roots such as carrots, parsnips, potatoes, yam, bananas ; the idea being to exclude from present diet and conserve those grains and pulses which can be kept and stored. Vegetables too should not be eaten as an indulgence or for pleasure, when millions are denied the use of these things altogether and are now threatened with starvation due to shortage of cereals and pulses.

2. Everyone who has access to any water should try himself or herself to grow some edible for personal or general use. The easiest way to do so is to collect clean earth, mix it with organic manure where possible — even a little bit of dried cowdung is good organic manure— and put it in any earthern or tin pot and throw some seeds of vegetables such as mustard and cress etc. and daily water the pots. They will be surprised how quickly the seeds sprout and give edible leaves which need not even be cooked but can be eaten in the form of salad.

3. All flower gardens should be utilized for growing edibles. And in this connection I would suggest to the Viceroy, Governors and high officials to take the lead. I would ask the heads of agricultural departments at the Centre and Provinces to flood the country with leaflets in the provincial languages telling laymen how and what to grow easily.

4. Reduction should be taken up not merely by the civilian population but equally, if not predominantly,

by the military. I say predominantly, for the military ranks being under rigid military discipline can easily carry out measures of economy.

5. All exports of seeds, such as oil seeds, oils, oil cakes, nuts, etc., should be stopped, if they have not been already. Oil cakes, if the seeds are sifted of earth and foreign matter, are good human food with rich protein content.

6. Deep wells should be sunk by the Government wherever possible and required, whether for irrigation or drinking purposes.

7. Given hearty co-operation by Government servants and the general public, I have not the slightest doubt that the country can tide over the difficulty. Just as panic is the surest way to defeat, so also will be the case when there is widespread distress impending and prompt action is not taken. Let us not think of the cause of the distress. Whatever the cause, the fact is that if the Government and the public do not approach the crisis patiently and courageously, disaster is a certainly. We must fight this foreign Government on all other fronts except this one, and even on this we shall fight them if they betray callousness or contempt for reasoned public opinion. In this connection I invite the public to share my opinion that we should accept Government professions at their face value and believe that Swaraj is within sight inside of a few months.

8. Above all, black-marketing and dishonesty should disappear altogether and willing co-operation between all parties should be the order of the day in so far as this crisis is concerned.

Sevagram, 14-2-'46

Harijan, 24-2-1946

6

WHY NOT IMPORT FOOD?

Q. It is necessary to import as many foodstuffs as possible. As it is, people do not get enough to eat. Any further reduction in rations is fraught with risks. It will mean further under-nourishment, making the people an easy prey to disease. It may even lead to food riots. As for increasing production, it is most difficult, if not utterly impossible, at the present juncture.

A. I am aware that many people hold the views given above. But the argument does not impress me. People will find it unbearable to have their rations further reduced when they are already not getting enough to eat. But if we accept, as I do, that the Government figures are correct, foresight demands, and it is our duty, to swallow the bitter pill and ask the people to do likewise, i.e. we should all eat less so that we can hold out till the next harvest. Today, because of the corrupt administration, the masses do not even get their just dues under the rationing system. It will be a great thing if this can be rectified, so that everyone can get his or her share easily and truly. If, however, we believe the Government figures to be wrong and continue the agitation for increased rations and if the Government concedes that demand, a time will come before the next harvest is in when we shall be left without any food whatsoever and the poor will have to die an untimely death. We should take every care to avoid such a calamity. It will, therefore, be wisdom on our part to put up with a reduction in the present rations.

Then, I do not think it is impossible to grow more foodstuffs, though I agree that it is difficult. The difficulty is due to our lack of knowledge and the requisite skill. If we are all optimistic and courageous and employ ourselves forthwith to produce whatever food we can by our individual effort, we shall probably be able

before long to give the people a balanced diet and shorten the period of reduced rations.

My optimism is irresistible, but I admit that nothing will be possible without whole-hearted co-operation on the part of both the Government and the public. Without it, even the imported foodstuffs may be squandered and maldistributed. Besides, we are not yet independent. Relying on outside help will make us still more dependent. If, however, without relying on them, we do get imports of foodstuffs, we shall gratefully accept and make the best use of them. While it is the duty of the Government to try to get food from outside, I do not think it is good for us to look either to them or to other countries. What is more, disappointment from that direction will be positively harmful for the morale of our people in these hard times. But if the people become united and determined to look to none save God for help and do not oppose such Governmental measures as they find useful, there will be no cause for disappointment. Such action will enable the people to emerge stronger from the ordeal and foreign countries will think of their duty to send us food of their own accord wherever they can spare it. God helps those who help themselves. How can others withhold help from the self-reliant? The British Government, during their hour of need, took away all that India had and today we have to put up with the consequences of their action. Need we then tell them and those whom they helped by depleting India's resources that their duty today is towards India?

Sevagram, 16-2-'46 (From *Harijanbandhu*)

Harijan, 24-2-1946

7

IGNORANT WASTE

Shri Jhaverbhai Patel of the A.I.V.I.A., who knows his subject, writes :

" Since the cutting off of the supply of rice from Burma there has been an acute shortage of rice in India. To meet this quantitative deficiency Government prohibited the polishing of rice beyond a certain degree. If polishing had been banned altogether the deficiency caused by the supply of rice from Burma being cut off would have been more than met. The import of Burma rice came to only about 5 per cent of Indian production, while the loss entailed in polishing rice came to 10 per cent. But Government could not introduce that measure partly because it is difficult to make violent changes in the habit of the people, and partly because the present Government is not in a position to create and carry public opinion with it. But what is more, even the halting step taken by the Government has been put to naught without the intelligent co-operation of the people. Since the Government has begun supplying undermilled rice, consumers have been getting the rationed rice polished. I have recently seen in Gujarat that the pounding of rice on wages by the women of the *Gola* caste from door to door has become a regular system. There has also been a brisk sale of wooden pestles for use by families. In big cities like Bombay, where space does not permit the use of wooden mortars and pestles, women use the handy iron mortars and pestles. The average quantity of rice reduced in getting it polished in wooden mortars comes to about 5 per cent, while there is no limit to this reduction in the case of iron mortars, the loss sometimes being as high as 30 per cent. There may hardly be a few families who may be eating rice as it is rationed out. The result is worse than the regular supply of polished rice.

"The most effective way to get whole rice find its permanent way into our dietary is to teach our womenfolk the science of dietetics."

It is very true that this peremptory reform can be brought about quickly by educating our women in the art of conservative cookery. How this education can be imparted is a serious question. Schools and colleges are perhaps the most ready-made media, let alone the press and the platform. If the people are to save themselves and the starving millions, during this critical period the press and the platform have to respond to the urgent need.

Sevagram, 17-2-'46

Harijan, 24-2-1946

8

THE GRIM SPECTRE

The grim spectre of the impending famine filled Gandhiji's mind during the brief interval that he was at Sevagram after his return from Madras. He addressed the Ashram people after the evening prayer on the same day to emphasize the supreme necessity of conserving and economizing food and increasing its supply by laying under cultivation every available inch of space that could be used for growing food. He took up the question with Dr. Zakir Hussain and some other members of the Talimi Sangh who came to him for a talk on the afternoon of the 16th inst. Since *Nayee Talim* meant a living co-relationship with the actual conditions of life, it ought to respond to every change in the latter. "It would not, therefore, do for you to say in the present crisis that you are occupied with your educational activity whilst the people are threatened with death due to starvation. *Nayee Talim* must react to the present situation by converting itself into an instrument for increasing our food supply and teaching people how to meet the danger of food shortage. If the students under *Nayee*

Talim can produce even a part of their food requirement they will to that extent release food for others, besides teaching them self-help by their personal example." Someone had complained that the land at the disposal of the Sevagram Talimi Sangh was of a poor quality and hardly fit for agriculture. Gandhiji brushed aside the objection. "You do not know what kind of land we had to begin with in South Africa. Who would give good land to 'coolies,' as we were called there? But by dint of application we were able to convert it into a fruit orchard.

"If I were in your place I would not use the plough to begin with. I would arm our children with the hoe and teach them to use it effectively. It is an art. Bullock power can come later. Similarly, I would not like you to be deterred by the poor quality of the soil. A thin top layer of loam or compost can enable us to grow many a useful vegetable and pot herb. A beginning can be made at once by converting night soil into manure by the shallow trenching system. The conversion does not need more than a fortnight. Every pint of water whether from bathing or ablutions or from the kitchen should be turned into the backyard vegetable beds. Not a drop of water should be allowed to be wasted. Greens can be grown in earthen pots or even discarded old tins. No opportunity should be neglected, however trifling. The cumulative result, then, if the practice is on a nation-wide scale, will be colossal."

Poona, 23-2-'46

Harijan, 3-3-1946

9

FOOD SHORTAGE

In regard to the food shortage I admit that Government alone has adequate resources to cope with it. But even so we need not apathetically resign ourselves to fate, fixing our gaze on the skies for the rains to come. There is an inexhaustible reservoir of water in the bowels of the earth. It should be tapped, even though we may have to dig two thousand feet deep for it, and used for growing food. We may not blame fate before we have exhausted all available means for combating a threatening calamity.

Today there is a lot of wastage in food going on in big cities like Bombay in the form of feasts and ceremonies. It is the sacred duty of every man, woman and child to conserve every grain of food and every drop of oil and ghee in this crisis. One should eat no more than necessary to keep the body in health and fitness when millions are faced with the prospect of death through starvation. The foodstuffs thus saved can be distributed among the needy poor—not as alms but as remuneration for honest labour.

Poona, 23-2-'46

Harijan, 3-3-1946

10

A USEFUL PAMPHLET

A friend sends me a copy of a leaflet published by the Department of Agriculture, Bombay Province. It contains hints on small scale vegetable cultivation in compounds of bungalows etc. This was published in 1942 during war time in pursuance of a campaign for growing more food. What was then necessary is much more so now in view of the increasing shortage of food. It is a pity that the leaflet is printed in English. It may be, how-

ever, that only the English pamphlet has been sent to me and that it has been translated into the provincial languages. Be that as it may, the leaflet is certainly instructive and useful and I would suggest to the readers who are interested, as they should be, in the matter that they send for and study it with a view to making use of the suggestions, if they have a plot of land available for the purpose. Among the hints contained are the following chosen by me at random :

(a) Plots selected should be well-drained and not overshadowed by trees or buildings.

(b) Beds in which flowers have been successfully grown are usually suitable, but portions of lawn may also be dug up and used for vegetable gardening.

(c) Waste water from bath-rooms or kitchen can be utilized for the purpose.

(d) It stresses the necessity of using organic manure such as cowdung and tells the reader what vegetables can be easily grown.

(e) A table is given at the end showing the quantity of particular seeds required, the depth at which they should be sown, the size of the beds and the distance between the rows of plants.

Poona, 1-3-'46

Harijan, 10-3-1946

11

HELPFUL HINTS

A correspondent writes :

"You are at present in Poona. I understand from the papers that H. H. the Aga Khan is your friend. He has plenty of land and water supply at his disposal in his palace in Poona. The same applies to the spacious grounds of Government House at Ganeshkhind. Could not both these places be utilized for growing food ? Could you suggest it to him ?

"You believe in fasts. You have said that fasts are not merely for attaining religious merit but are also beneficial for health. Can you not then recommend to the well-fed abstention from food either one day or even one meal or more during the week ? A great deal of foodstuffs could thus be made available to the poor.

"They say that even a small quantity of sprouted grain, if eaten raw, provides the requisite nourishment. Is this so ? "

The above is condensed from a letter. All the three suggestions are sound and could easily be put into practice. The first is obviously for those who possess both land and water ; the second for the well-to-do ; the third applies to all. In essence it means that whatever can be eaten raw should be so eaten. By intelligently following this rule one can make a small quantity go a long way. I have little doubt that if people understood the laws of dietetics and acted accordingly, a tremendous economy in food could be effected.

(From *Harijansevak*)

Poona, 1-3-'46

Harijan, 10-3-1946

12

PRESS STATEMENTS

[The following letter of 21-2-'46 from Gandhiji to the Private Secretary of the Viceroy and the latter's reply dated 26-2-'46 are released to the Press by Gandhiji with the consent of His Excellency the Viceroy.]

"Here are a few more suggestions to meet the food situation which have been sent me by friends.

"The Indian Army should be given this unique opportunity of doing constructive work. They can be moved about easily. They could therefore be sent to all such places where wells need to be dug most urgently.

"Regarding additional foods, fish has been mentioned. Fish abounds in the seas around the coast of India. The war is over; there are innumerable small and medium-sized vessels which were used for doing patrol and guard duties along our shores for the last five years. The R.I.N. could arrange about staffing these, with the Department of Fisheries giving all assistance. If everything and anything can be done during a war — why not a peace time war effort? Dry fish does even now form part of the normal diet of a great number of people who are very poor — that is when it is available and they can afford to buy it.

"All public gardens should immediately by law be made to start growing vegetables. Squads of army personnel should be put to work here too. People requiring extra labour to transform their ground or garden should also be able to obtain free help through this channel.

"The distribution of food should be through Co-operative Societies or similar organizations.

"All food parcels to relatives or friends in Britain or elsewhere abroad should be stopped as also the export of groundnuts, oils, oil cakes, etc.

"All stocks of foodstuffs in the hands of the military should be released forthwith and no distinction should be made between military and civil ranks. In this connec-

tion I draw His Excellency's attention to the following A.P.I. message published in the *Amrita Bazar Patrika* of 11-2-'46.

Dacca, Feb. 8.

'It is learnt that huge quantities of decomposed *atta* are being destroyed for the last few days by throwing them into the river Shitalaksha at Narayanganj.'

"The campaign against despondency and for growing more food will avail nothing, unless bribery which is going on as never before is stopped and honesty and straight dealing begin to pervade the Government ranks and the Public."

* * *

"Thank you for your letter of the 21st February making suggestions to meet the food situation. His Excellency, to whom I have shown your letter, is grateful to you for writing, and will have the various proposals examined where this has not been done already.

"2. Only a day or two ago His Excellency suggested to the Commander-in-Chief that it might be possible for the R.I.N. to assist with fishing. Recent events may make this difficult, but meanwhile His Excellency has initiated enquiries about the possibility of importing dried fish from Canada and Newfoundland, and also about the securing of suitable vessels and equipment so as to make a start with developing on modern lines the fisheries industry. Already the Army is doing a good deal in the Grow More Food campaign and is releasing machinery for digging wells, levelling ground, etc.

"3. In Delhi a considerable part of the Central Vista is to be ploughed up and the gardens of bungalows are to be used for growing vegetables on a larger scale. The sending of food parcels to friends or relatives outside India has been ordered to be stopped and an urgent examination is being undertaken of the question of exporting groundnuts, oil cakes, etc.

"4. Bribery and corruption is admitted to be one of the worst enemies of efficient food administration. This is also one of the most difficult to defeat. The detailed

implementing of the controls is mainly in the hands of Provincial Governments, and perhaps the new Ministries may be able to achieve results in this direction."

Poona, 6-3-'46

Harijan, 17-3-1946

13

LEAVING FOOD

Q. It is supposed to be a sign of ill breeding not to leave some food on one's plate after finishing a meal. The contrary is supposed to be the correct thing to do.

A. It passes my comprehension how such action can be tolerated, especially in the face of the threatened famine. I do not know the reason for this practice and it would be waste of time to enquire into it. I consider it to be a sign of vulgarity and lack of perspective to have more on one's plate than one requires. In the present time no one is really entitled to full meals. Waste would be a sign of callousness. On the other hand, I consider it good breeding and discrimination to leave one's plate clean of leavings. It saves too the time of those who wash up. It is thoughtful and correct before beginning a meal to remove what one considers excess from one's plate on to a clean plate. Hosts should be discriminating and have enough delicate regard to find out what their guests require in the way of food and then give them no more than what they want.

(From *Harijanbandhu*)

Poona, 6-3-'46

Harijan, 17-3-1946

14

QUESTION BOX

Q. You ask people not to eat polished rice but I fear the disease is too far gone. Polished rice is washed again and again and the water thrown away. It is then boiled and that water too is emptied into the drain thus depriving the cereal of all its vitamin value. The rice thus served, with each grain separate, is pleasant for both the eye and the palate. The practice obtains even in student's hostels. How are we to get rid of it ?

A. I am aware of the above-mentioned malpractice. We live in the poorest of poor countries and yet are unable or unwilling to give up such harmful habits. Each one thinks only of himself. We look upon our neighbours as strangers instead of as our kith and kin. What does it matter to us whether they live or die ? If they die it is their own fault. If they live it is accredited to their merit. Life and death are not in our hands. Therefore, let us eat, drink and be merry !

In such a distorted view of life we have to follow what we consider to be our duty and believe that what is true will one day be followed. Until then, whenever occasion arises we must proclaim from the housetops what we consider to be right.

Q. You say that those who eat fish should be provided with the same. Does not this entail violence both for him who eats and him who provides the fish ?

A. Both commit violence. So do those who eat vegetables. This kind of violence is inherent in all embodied life, therefore, in man too. It is in this condition and in spite of it that we have to practise non-violence as a duty. I have often indicated how we may do so. The man who coerces another not to eat fish commits more violence than he who eats it. Fishermen, fish vendors, and fish eaters are probably unaware of any violence in their action. Even if they were they may look upon it

as unavoidable. But the man who uses coercion is guilty of deliberate violence. Coercion is inhuman. Those who quarrel among themselves, those who will stoop to anything in order to amass wealth, those who exploit or indulge in forced human labour, those who overload or goad or otherwise torture animals, all these knowingly commit such violence as can easily be stopped. I do not consider it violence to permit the fish eater to eat fish. It is my duty to suffer it. *Ahimsa* is the highest duty. Even if we can not practise it in full, we must try to understand its spirit and refrain as far as is humanly possible from violence.

(From *Harijanbandhu*)

Bombay, 11-3-'46

Harijan, 24-3-1946

15

WASTEFULNESS

Correspondence continues to pour in saying that stored food material being declared unfit for human consumption is thrown away. Skimmed milk is also thrown away for want of custom and condensed milk is lying idle owing to ignorance. Accumulation of food material at the ports will not mitigate distress unless it is promptly taken to the places where it is immediately required. Worse than this however is the triple waste going on now side by side with ever growing famine conditions. All such waste takes place for lack of a living contact between the people and the rulers.

Uruli, 24-3-'46

Harijan, 31-3-1946

16

BEGGING FOR FOOD

As for the F.A.U.'s (Friends' Ambulance Unit's) plan of work for the prevention of famine, while generally approving of it, Gandhiji did not like the idea of what he called "begging for food from outside". "If food comes it would be welcome. But we should not depend on it. India is the granary of the East and now she has to go a-begging for food to America and other countries. I do not like this. Somehow or other, if we rely on self-help, strength comes, we do not know from where. Probably it comes from the original source and people feel they need not die. Moreover, arrival of food in the ports by itself would not solve the problem unless it is made available where it is most needed. Distribution is the real problem. Unless it is tackled there is danger that the food will rot in the ports while people are dying in the interior. At present it seems almost a hopeless task through the present corruption. A Government official sent a note the other day showing how it would be at least two months between the arrival of the food ships in the ports and the food actually reaching the affected areas. In the meantime what are the people to do? I have, therefore, suggested that they should utilize the subsoil water to grow whatever they can by their own effort. If crores take up the cue, they can do much to save themselves even before the food arrives from outside."

Uruli, 23-3-'46

Harijan, 7-4-1946

17

A MINISTER'S WOE

Dr. Katju sends the following note:

"Owing to the comparative failure of winter crops in many parts of India, there is a widespread apprehension about serious food shortage in the country. In order to afford equal opportunity to the rich and the poor alike regarding food supplies, rationing has been introduced in many urban areas in the United Provinces. Rationing entails responsibility on the Government to feed the inhabitants in such areas. The apprehended scarcity is so severe that the U.P. rations have been cut down to the barest minimum, viz., six *chhatak* of cereals. This includes 2 *chs.* of wheat, 2 *chs.* of rice, and 2 *chs.* of mixed *atta.* Mixed *atta* is not generally liked by the people and any further reduction in rations is almost impossible. To feed the urban areas, continuous supplies from the villages is an evident necessity. The Government of India has suggested to Provincial Governments that in order to ensure continuous supplies, it would be desirable to enforce compulsory levies on agricultural produce in surplus districts, i.e. in districts where it is expected that the produce exceeds the requirements of the rural area concerned. This question of a compulsory levy is greatly agitating the public mind. It is said that the control price fixed by the Government is too low and should be raised. The answer to that is, that the price structure is an all-India affair and it is not possible to raise the price in any particular province without affecting the structure as a whole. Furthermore, the control price in the United Provinces has been fixed at Rs. 10-4-0 per maund of 40 *seers* which is not really a low price. It is sufficiently remunerative and makes due allowance for the rise in costs of cultivation and general living. Formerly in pre-War days wheat used to sell at about 13 *seers*

a rupee; the control price is 4 *seers*. Supplies being apprehended to be much less than the demand, there is bound to be a black market where selfish people can buy foodstuffs at higher prices to satisfy their individual needs. No compulsion would be necessary if cultivators realize that it is their social and patriotic duty to do their utmost to feed their brothers and sisters in urban areas, and also landless people living in the rural areas. The cultivator is in every sense of the word the *Anna-data* and I ask you to appeal to him at this critical juncture not to hoard, not to sell in the black market but to supply in the greatest measure possible to the Government stores, so that food may be distributed equitably and equally to all people, rich and poor alike, and hunger and destitution may be avoided. Your voice goes far and wide and I therefore appeal to you to take up this work. Very many schemes have been considered for the purpose of ensuring adequate supplies in our urban areas, but whatever the proposals may be, the net result is that in every case the cultivator is asked to part with his grain. Unless the consumers in rural and urban areas are fed, there are bound to be disturbances of every kind. We are doing our very best to encourage the 'Grow More Food' and 'Grow More Vegetables' campaigns in the United Provinces. The various suggestions made by you have all been adopted. Instructions have been issued to plough all Government lands in Government buildings etc. Private owners have also been offered expert advice and are being given facilities by the supply of free seeds and free water from irrigation channels. Assistance in the digging of wells has also been given. After all is said and done, without public co-operation little progress can be made and co-operation must take the form of the *Anna-data* giving the gift of food grains to the utmost of his capacity."

This note from Dr. Katju is worthy of close attention by the Kisan and his guides as also urban people. The impending calamity can be turned to good use. Then

it will be a blessing in disguise. Otherwise, curse it is and curse it will remain.

Dr. Katju writes as a responsible minister. Therefore, people can either make or mar him. They can remove him and replace him by a better. But so long as ministers of the people's choice are in office as their servants, the people have to carry out their instructions. Every breach of law or instructions is not Satyagraha. It can easily be *duragraha* rather than Satyagraha.

New Delhi, 14-4-'46

Harijan, 21-4-1946

18

SUGAR AND SWEETMEATS

Q. The sugar ration in Bombay has just been reduced by 25 per cent. Would it not have been fairer to reduce sweetmeat shops' rations rather than cut down the individual's ?

A It is always well to cut down the ration of sweet vendors rather than that of individuals. In these hard times I would not mind if sweet-making were even prohibited. Sweetmeats are not a necessary part of a wholesome diet.

White Bread and Brown

Q. Up till January it was obligatory to mix ten per cent of bran with wheat flour. Later the rule was abolished. Should it not be reinforced ?

A. I am a witness to the age-old rivalry between white and wholemeal brown bread. People are attracted by whiteness. I nurse the belief that the Negro is not drawn by it. Be that as it may, it is a fact that special effort is made to make bread look white. Fortunately, only city dwellers indulge in such fads. Doctors say that one *chapati* of wholemeal flour is more tasty and contains more nourishment than two to five *chapatis* made out of refined flour. And in these days it is our duty to use wholemeal, because all flour saved is flour gained. From

one point of view it is even more than that. Wheat stored in villages is far more useful than sacks of it lying in ports. Therefore, it is desirable to make the mixing of bran with wheat flour compulsory. The war is over but post-war conditions are worse for us than during the war, and the situation is daily deteriorating. God alone knows when it will improve.

(From *Harijanbandhu*)

New Delhi, 22-4-'46

Harijan, 28-4-1946

19

DEPLORABLE

Shri J. C. Kumarappa, writing in the *Gram Udyog Patrika*, says that to rely on or encourage imports from abroad is wholly wrong in principle. In the matter of the expected shortage of sugar owing to the failure of winter rains in the U.P. and Bihar and by frost in the Punjab and N.W.F.P., he suggests that the deficit in sugar should be made good by tapping palm trees in jungle areas for *nira* and preparing *gur* and sugar from it.

In regard to the import of a primary necessity like kerosene oil, he suggests further extraction of vegetable oils to meet our needs. Imports will entail export of some of our own production to pay for them, and will only cause further distress in the long run.

He also draws attention to the insidious scheme for the development of Virginia Cigarette tobacco in Bihar sponsored by Sir Herbert Stewart (Vice-Chairman of the Imperial Council of Agricultural Research). Under the scheme a number of research stations on tobacco are to be opened in various places, and the Imperial Tobacco Company have given two studentships of £500 per annum for training in tobacco cultivation abroad. At such a time the obvious duty of a government should have been not to waste good money or time on tobacco research, but to devote both to reclaim all available land

for food cultivation. But Imperial Councils can only think in terms of either tobacco, long stapled cotton, or thick rind sugarcane for mills and groundnut for export, and thus serve foreign business masquerading as " India Ltd.".

New Delhi, 21-4-'46

Harijan, 28-4-1946

20

PRESS STATEMENT

Mr. Hoover's flying visit to India has excited considerable interest and possibly hope. Whilst all the help that America and other countries can send to India, struggling against starvation, must be welcome, my endeavour has been to find ways and means to make ourselves self-supporting. The moment people give way to panic, starvation is a certainty in spite of a continuous line of steamers offloading grain from outside on India's wharves. Conversely, every grain from abroad sent as a matter of duty to self-reliant India, honestly and manfully braving the threatening danger, will be twice blessed. Let Mr. Hoover's visit serve as a reminder to Government servants, monied men and grain merchants that they must think all the time of their duty to the masses. Nature never fails those who will help themselves.

New Delhi, 26-4-'46

Harijan, 5-5-1946

21

MANGO SEED KERNEL

A friend has sent me an extract from *Current Science* showing how mango seed kernel is a fair substitute for cereals and fodder.

> "According to a recent estimate, the concentrates available in India are sufficient only for 29.1 per cent and fodder for 78.5 per cent of adult bovine population. This does not take into account the requirements of goats, sheep and equines. The shortage is further accentuated during periods of famine. In order to meet the shortages, the Nutritional Research Laboratory at Izat-Nagar have been exploring new sources of foodstuffs. This investigation relates to the use of mango seed kernel as a cattle and human food. At present the material is thrown away as waste. From chemical analysis of kernels it has been found to be rich in carbohydrates and fats (crude protein 8.5 per cent, other extract 8.85 per cent and soluble carbohydrates 74.49 per cent on dry basis.)
>
> * * *
>
> "The observations credit mango seed kernel with a place in the category of food grains and make available every year about 70 million lbs. digestible protein and 780 million lbs. of starch equivalent from a hitherto unutilized source. It has been also calculated that the digestible protein obtained from 80 lbs. of oats is equal to that of 100 lbs. of the kernel and the starch equivalent for 86 lbs."

I have known this use from my early youth. But no one seems to have thought of conserving this seed for food. The mango season is upon us and though much time has been lost, it will be a good thing if every mango seed was saved and the kernel baked and eaten in the place of cereals or given to those who need it. Every ounce of food saved is so much gained.

Delhi, 21-5-'46

Harijan, 26-5-1946

22

GREEN LEAVES

Take up any modern text-book on food or vitamins, and you would find in it a strong recommendation to take a few edible green leaves uncooked at every meal. Of-course, these should always be well washed half a dozen times to remove all dirt. These leaves are to be had in every village for the trouble of picking. And yet greens are supposed to be only a delicacy of cities. Villagers in many parts of India live on *dal* and rice or *roti*, and plenty of chillies, which harm the system. Since the economic re-organization of villages has been commenced with food reform, it is necessary to find out the simplest and cheapest foods that would enable villagers to regain lost health. The addition of green leaves to their meals will enable villagers to avoid many diseases from which they are now suffering. The villagers' food is deficient in vitamins; many of them can be supplied by fresh green leaves. An eminent English doctor told me in Delhi that a proper use of green leaves was calculated to revolutionaize the customary notions of food and that much of what was to-day being supplied by milk might be supplied by green leaves. That, of course, means elaborate research and examination in detail of the nourishing properties of the innumerable leaves that are to be found hidden among the grasses that grow wild in India.

I had introduced to me the leaves of *sarsav*, *suva* turnip-tops, carrot-tops, radish-tops and pea-plant leaves. Besides these, it is hardly necessary to state that the radish, turnip and carrot tubers are also known to be edible in their raw state. It is waste of money and 'good' taste to cook these leaves or tubers. The vitamins contained in these vegetables are wholly or partially lost in cooking. I have called cooking these waste of 'good' taste, because the uncooked vegetables have a natural good taste of their own which is destroyed by cooking.

Harijan, 15-2-1935

23

SOYA BEANS

It should be remembered that soya beans are a most nutritious diet. It stands at the top of all the known articles of diet because of its low percentage of carbohydrates and high percentage of salts, protein and fat. Its energy value is 2,100 calories per lb. against 1,750 of wheat and 1,530 of gram. It contains 40 per cent of protein and 20.3 per cent of fat against 19 and 4.3 respectively of gram and 14.8 and 10.5 of eggs. Therefore no one should take soya beans in addition to the usual protein and fatty foods. The quantity, therefore, of wheat and ghee should be reduced and *dal* omitted altogether, soya beans being themselves a highly nuritious *dal.*

Harijan, 19-10-1935

24

SOYA BEAN CULTIVATION

Inquiries are being made as to where soya beans are to be had and how they are to be sown and in what ways they are to be cooked. I give below a free translation of the main parts of a Gujarati leaflet published by the Baroda State Food Survey Office. Its cost is one pice :

" Soya beans grow on a plant from one foot to fifteen inches in height. Every pod has on an average three beans. The plant has many varieties. The bean may be white, yellow, blackish, variegated, etc. The yellow variety has the largest percentage of protein and fat. This variety is more nutritious than meat or eggs. The Chinese eat beans with rice. Soya bean flour may be mixed with ordinary flour in the proportion of 1 to 5 parts of wheat and turned into *chapatis.*

Soya bean crop improves the soil. Instead of deriving nitrogen like other plants from the soil, soya bean derives it from the air and thus enriches the soil.

Soya bean grows in practically all soils. It thrives most in soils favourable to cotton or grain crops. Salt soil improves if soya bean is sown in it. In such soil more manure should be used. Fermented cow dung, grass, leaves and dung heap manure are quite serviceable for this crop.

Temperate climate suits the bean. It thrives where the rainfall is not more than 40 inches. It should not be sown in water-logged soil. The bean is generally sown after the first rains, but it can be sown during any season. In the dry season it requires to be watered once a week, or twice if the soil is inclined to dry quickly.

The soil is best prepared in summer. It should be ploughed up and exposed to the sun's rays. Then the clods should be broken up and pulverized.

The seed should be sown in rows twentyfour to thirtysix inches apart. The plants should be three to four inches apart in their rows. There should be frequent weeding.

One acre would take from 20 to 30 lbs of seeds. They should not be sown deeper than two inches. One acre will require about 10 cartloads of manure.

After the sprouting of the seeds there should be proper weeding with a light plough. All crust should be broken up.

The pods are ready for picking in 120 days after sowing. They should be picked as soon as the leaves begin to turn yellow and drop off. They should not be allowed to be on the plants till they open, or else the seeds will drop out and be lost in the soil."

Harijan, 9-11-1935

25

IN PRAISE OF GROUNDNUT CAKE

A friend sends the following opinion of Prof. D. L. Sahasrabudhe, in praise of groundnut cake. It certainly deserves a trial.

There is a good deal of preaching done to encourage the use of soya beans as a food material, while groundnut which is extensively grown in India is not given the consideration it deserves. Groundnut is a very valuable oil-seed and food material. Groundnut itself is not easy for digestion and many times causes digestive disturbances. This is, however, due to the presence of a very high proportion of oil — 50 per cent. If the oil is extracted from well cleaned seed, the oil-cake left behind is a highly nutritious food material for human consumption and does not cause any trouble. The following is the average analysis of groundnut cake and soya beans.

	Groundnut cake per cent	Soya beans per cent
Moisture	8	8
Proteids	49	43
Carbohydrates	24	19.5
Fat	10	20
Fibre	4	5
Mineral matter	5	4.5

The groundnut cake compares very favourably with the soya beans. It is actually better than soya beans in the essential constituents, namely the proteids and the mineral matter. Further, the groundnut proteid is better than soya bean proteid in essential amino-acids as shown by the following figures :

Essential Amino-acids	Groundnut Proteids per cent	Soya bean Proteids per cent
Tyrodine	5.5	1.86
Agrinine	13.5	5.12
Histidine	1.88	1.39
Lysine	5.50	2.71
Eystine	0.85	—

If at all any biliousness is caused by groundnut cake, use of a small quantity of jaggery or a little soda bi-carb will be a good preventive.

The groundnut cake has a very good taste and its keeping quality can be improved by heating and keeping the cake in a properly closed vessel.

Sweets and ordinary articles of food can be prepared from groundnut cake. Attempts must, therefore, be made to spread the knowledge about the usefulness of groundnut cake. It is certainly equal to and even better than soya beans.

Harijan, 14-12-1935

26

COFFIN AT THE FEAST

Gandhiji reminded his fashionable audience (in Mussoorie) of the coffin at their feast. As a matter of fact the famine was already in the land. Crores were not getting enough to eat. Rich people were perhaps ready to give money, but no one could eat money. There was not enough food in the country. Whatever there was could not be transported quickly to the deficit areas. Such was the bankruptcy of Government. Then again there were places where people went hungry in spite of the fact that the food was stored on the spot. The reason was all round corruption and the greed of our own people. He appealed to those who were well-off and could afford to get somehow whatever they wanted, to spare every grain of foodstuffs, that they could. If the people co-operated and

The third is contentious. In a country where all life is largely held sacred and even when it is not, habit has made people reluctant to take any life, the suggestion may be difficult of adoption even by non-vegetarians. But a confirmed respecter of all life though I am, I have no difficulty in recommending for acceptance by meat-eaters the suggestion that the correspondent's wisdom has dictated. I hope to examine an argument in *Harijanbandhu* advanced against the taking of even noxious life without any connection with food.

The fourth suggestion, though sound, is not likely to produce any tangible result because of the ruling corruption and the inefficiency and irresponsibility of the Government. The difficulty will only be met when there is a national government which is responsible to the people and to which the people may look forward with confidence. It has been long coming. Will it ever come?

Mussoorie, 29-5-'46

Harijan, 9-6-1946

28

MINISTERS' FOOD RATIONS

Q. Whilst the food policy was in the hands of the Advisers to the Provincial Governors, there was no effective method of checking them. Things under the responsible Provincial Governments are different. Should it not be a matter of conscience with the Congress ministers to get their rations from common rationing depots and not take a grain more from any other source? This will immediately have a far-reaching effect. Today all controlling centres for food grains or cloth have become public dens for thieving and corruption. Equipped with the moral force that the ministers will gain by acting as suggested, they will be able to fight out the evil with success.

A. This question is a consolidation of many letters of complaints. I wholly agree with the suggestion made

in the question. I fancy that the suggested practice is already being observed, not only by the ministers but all other Government servants. I do not know of any other source, save the black market for getting supplies of foodstuffs. Of course, no exhortation can take the place of persons in authority setting a good example. If they took their rations from the same stock as is given to the public, the keepers of stores will soon find that it does not pay to dole out rotten stuff to the public. The practice of the ministers and other high-placed men in England, taking their things in common with the public is, I am told, the usual thing as it should be.

Panchgani, 28-7-'46

Harijan, 4-8-1946

29

WHY IN WANT OF FOOD ?

Q. India at the present time cannot grow enough food for its population. To buy food from abroad, India must sell other goods to pay for it, and in order to sell such goods, India must produce at competitive prices which, in my opinion, cannot be done without modern machines. How can this be done, unless the machine replaces manual labour ?

A. The statement in the first question is wholly wrong. I hold, in spite of opinions expressed to the contrary, that India is able at the present moment to grow enough food. I have previously stated the condition for growing enough food, viz., that the Government at the head should be National and a Government that knows its business and is capable of dealing sternly with all profiteering, black-marketing and, worst of all, laziness of mind and body.

The second part of the question really falls to the ground if my answer to the first is correct. But for the sake of dismissing the plea on behalf of modern machines as against human labour of which there is plenty in a

land like India, I would say that if all the able-bodied millions work with one mind and with zeal, they could compete on their own terms with any nation, however well-equipped it may be with modern machines. The questioner should not forget that modern machines have up till now gone side by side with the exploitation of the machineless nations, dubbed weak. I use the participle "dubbed" because they will refuse to be weak, immediately they realize the fact that they are even at the present moment stronger than the nation equipped with the most modern weapons and machinery.

Sevagram, 8-8-'46

Harijan, 18-8-1946

30

MASS MURDER

A friend writes:

> "The food famine situation in Mysore and Rayalaseema is daily growing more serious. Unless imports pour in sufficient quantities, the local co-operative stores will fail to supply rations—starvation rations as they are, since only 8 oz. of rice is being given to peasants who need 24 oz. to keep them fit—to the peasant masses, and I am afraid that we may have to be prepared to face deaths due to starvation in November and December."

If even half of what he says is true, it is a sad reflection on our capacity to cope with food famine in a vast country like India where there is land lying waste or ill-used and water running rapidly into the sea for want of human ingenuity to dam and store it. The writer says that unless imports "pour in sufficient quantities", meaning undoubtedly that they come from outside India, "mass deaths due to starvation in November and December" are a certainty. I suggest to everyone concerned that if this happens, the Government of the country will be guilty of mass murder.

To look to outside sources for food supply is to invite starvation. Has it ever been made clear that India has no capacity for growing sufficient food between now and November? Need a vast country like India with its teeming millions starve even if the whole world were to declare a blockade against it?

Sevagram, 16-8-'46

Harijan, 25-8-1946

31

FOOD SHORTAGE

The danger of shortage reported from authoritative quarters bids fair to demoralize us into a panic which would be more fatal than real starvation. Such was my plight when a paragraph in the papers was read to me that of all the places in the world its intrepid Diwan had seriously contended that Travancore had a storage of food grains only for a fortnight. Knowing Travancore so well, I imagined all sorts of calamities, not merely for Travancore, but for all India. Travancore with its luxuriant growth of edible tubers, cocoanut and fish had no need to starve for a single day, even though it may have no other supply from the other parts of India. My faith in Travancore kept me whole. And to my joy I discovered that the shortage was not of food but of wheat and rice only. Travancore can grow rice, not wheat. So far as the cereals are concerned the inhabitants of Travancore are rice eaters. They take to wheat with difficulty and under stress. Would that the present distress could make us shed our provincialism and induce all India habits so as to make us feel fully at home, no matter which part of India we happened to find ourselves in. For the moment, however, my object would be fully served if all responsible men in India would definitely tell the people in their respective provinces, districts and states, not to look beyond India for supply of food but to grow what they can themselves and learn to eke

out a living from their own produce. And, if the numerous authentic letters I receive are an indication of things as they are or should be, we need fear no starvation for want of life-giving vegetables plus a little milk for vegetarians, and fish, flesh or fowl for non-vegetarians.

Let India realize that as yet we have no appreciable quantity of food from outside our shores. Many are willing to help but they are themselves for the most part sufferers or have more calls on them than they are able to cope with. The transport difficulty is very real for all of them and our own will commence when the foodstuff reaches our shores. Internal transport and distribution constitute a problem by themselves. It is, therefore, practical wisdom to brace ourselves for the struggle and declare with one voice our resolve that we shall grow our eatables for ourselves and perish bravely in the attempt if we must.

This is the only way and no other.

New Delhi, 21-9-'46

Harijan, 29-9-1946

32

CRIMINAL WASTE

The following is the gist of a long letter from one who writes from personal knowledge. The writer gives five instances of the mismanagement and inefficiency of those concerned which result in a colossal loss of food grains.

1. Entire lack of suitable storage for food grains which are thus exposed to destruction by rats, insects, etc.

2. Exposure of food grains to rain in *mandis*, railway goods, platforms and in front of retail shops.

3. Exposure of grain in uncovered heaps in *mandis* and in front of retail shops, so that millions of birds etc. feed on it all the year round.

4. Use of old, worn-out bags as containers for food grains with resultant loss in transport by spilt grain and pilfering.

5. The prevalent practice of marketing grain in an uncleaned state whereby not only the producer and consumer lose but there is an unnecessary loss in transport.

The loss caused through lack of suitable storage alone is reckoned at 3½ million tons and from the other four causes 1½ million, making a total of 50,00,000 tons every year. Lack of proper storage, apart from causing loss of 5 to 10 per cent in weight of the food grains because of rats and insects eating the best portion, is responsible also for deterioration in quality due to exposure. Grain merchants are apathetic, while authority is dilatory and inefficient, if not unconcerned.

The writer recommends that grain merchants must be compelled by law to provide themselves with suitable storage accommodation for foodgrains. No trading licence should be granted or renewed unless proper storage is in existence. 50 per cent of the loss could be stopped at once by plastering floors and walls, whitewashing, cleaning and disinfecting ceilings, making doors rat-proof and in some cases lining with burnt brick the walls of existing stores in *mandis*. Government should be the first to set an example in the matter of erecting permanent storage units and letting the people see the accruing benefit.

Between Lahore and Lyallpur the writer recently saw thousands of bags of wheat lying uncovered in open trucks or between rail tracks in heavy rain and not a single one of the Government officials on the spot responsible for the safety of the grain, took the trouble to raise a finger to prevent the perishing on that particular day only of 40,000 maunds of wheat. The same applies to other places all over the country. Waste of spilt grain could be stopped by making compulsory the use of double new bags as containers for grain.

It would be desirable to have the grain cleaned at the place of production. This would enable the producer

to receive full value for his grain, and use the small grain and screening for cattle and chicken, as well as constitute a large saving in road and rail transport.

The Government is spending Rs. 150 crores for the purchase of food and allowing the equivalent of that sum in food grains to be destroyed in our own country.

In addition the writer refers to what has already been commented on more than once in these columns in regard to the wanton waste of food in our homes, the necessity for growing more food on every available scrap of land, of surveying what cultivable land can be tilled forthwith, and water whether by wells or other means provided. He also recommends the stoppage forthwith of the usual cow-dung as fuel in cities, and proper use of all kinds of refuse for manure.

New Delhi, 19-9-'46 A. K.

[All the suggestions made by the writer can and should be adopted at once, if a major disaster is to be averted. —M. K. G.]

Harijan, 29-9-1946

33

PRICES OF FOOD GRAINS

Q. The policy of the Interim Government is to keep down the prices of food grains. Would it not adversely affect their production?

A. I want to reduce the prices of food grains still further. I claim to be a peasant myself and I know that only a fraction of the price paid by the consumer actually reaches the grower of food. It should be the business of the Interim Government to see that the tiller of the soil gets full value of his produce and that every pie paid by the consumer reaches the peasant's pocket, or else the Government should get out. It can never be guilty of wishing to provide cheap grains to the consumer at the expense of the grower of food. The trouble with the cultivator is not low prices but the middleman.

Even in Khadi production I set the target of 8 As. a day for the spinners. We actually reached the rate of 4 As. in spite of the objection that dear Khadi would spell the ruin of Khadi production. That illustrates my attitude towards the producer. I would eliminate the middleman altogether. It is he who today sponges upon the agriculturist. Otherwise, there is no reason why the peasant should starve. At the same time a peasant who profiteers or exploits the black market belies his calling. He is no less an exploiter than the Zamindar.

New Delhi, 30-9-'46

Harijan, 6-10-1946

34

SELF-HELP TO AVOID FOOD CRISIS

Representatives of the Krishak Samiti, Hashnabad People's Relief Committee met Gandhiji on January 24th at Murayam and informed him about the way in which Hindus and Muslims of Hashnabad raised a volunteer corps of about twelve hundred strong to defend the area from the onslaught of communal riots.

Gandhiji remarked, " I have heard of Hashnabad some time ago as the brightest spot of Hindu-Muslim unity during the riot period."

The interviewers then told him of a food crisis developing in this area and asked him if he would say something about it in his speeches so as to draw the attention of the Bengal Government.

Gandhiji replied, " Though I am not saying anything about the coming food crisis, I am aware of the situation. I am trying to solve it in my own way. I do not see why the people should depend upon the Government or other agencies for help. We hear nowadays people trying to secure foodstuffs from foreign countries. As a matter of fact if people will help themselves, then Government is bound to move and this is what I will call real democracy, which is built up from below. Bengal possesses

rich lands. They can produce edible roots. But again it is difficult to induce people to revise their tastes and old habits. Look at these cocoanut trees. Cocoanut makes a good nutritious food. I am trying to accustom myself to it. Of course, I extract the oil from it and the remaining portion as you know, contains good protein. Then take the many kinds of roots in the soil of Bengal which belong to the potato tribe, these can be used as good food. Then again, you have abundance of fish. Fish, cocoanuts and these roots can easily take the place of rice." Incidentally Gandhiji mentioned the general supineness of the people. As an instance he mentioned the water hyacinth which, if the people *en masse* volunteered their services for a week without any aid from the Government, they could get rid of within a week's time, causing a saving of thousands of rupees.

Harijan, 9-2-1947

35

THE PROBLEM OF FOOD

In his speech at the prayer gathering Gandhiji said: "Those who ought to know all about our food have gathered together at the invitation of Dr. Rajendraprasad to give him the benefit of their advice in the grave food crisis. Any mistake made on this important matter may mean avoidable starvation and death of millions therefrom. India is not unfamiliar with starvation and death of tens of thousands, if not millions, due to famine, natural or man-made. I claim that in a well-ordered society there should be always prearranged mehods of successful treatment of scarcity of water and food crops. This is, however, not the occasion for describing a well-ordered society and for showing how it would deal with the matter. Our concern, for the present, is to see whether we can, with fair hope of success, deal with the present food crisis.

Self-Help

I think we can. The first lesson we must learn is of self-help and self-reliance. If we assimilate this lesson, we shall at once free ourselves from disastrous dependence upon foreign countries and ultimate bankruptcy. This is not said in arrogance but as a matter of fact. We are not a small place, dependent for its food supply upon outside help. We are a sub-continent, a nation of nearly 400 millions. We are a country of mighty rivers and a rich variety of agricultural land, with inexhaustible cattle-wealth. That our cattle give much less milk than we need is entirely our own fault. Our cattle-wealth is any day capable of giving us all the milk we need. Our country, if it had not been neglected during the past few centuries, should today not only be providing herself with sufficient food, but also be playing a useful role in supplying the outside world with much-needed foodstuffs of which the late war has unfortunately left practically the whole world in want. This does not exclude India. The distress is growing instead of showing signs of decreasing. My suggestion does not include ungrateful rejection of free supply that any foreign country may wish to offer us. All I say is that we must not go a-begging. It demoralizes. Add to this the difficulty of internal transport of foodstuffs from one place to another. We have not the requisite facility for rapid movement of grains and other foodstuffs from place to place. Further add not the remote possibility of delivery of uneatable stuff. We dare not lose sight of the fact that we have to deal with human nature. In no part of the world it is to be found perfect or even very nearly so.

Meaning of Foreign Aid

Next, let us see what possible foreign aid we can get. I am told, not more than three per cent of our present wants. If this information is correct and I have had it checked by several experts who confirm the figure, I am sure the case for reliance on outside help falls to the ground. The slightest dependence on outside help is

likely to deflect us from trying to the fullest extent our immense internal possibilities in the shape of utilizing every inch of arable land for growing crops for daily food in the place of growing money crops. We must reclaim waste land which is capable of being placed under immediate cultivation.

Centralization or Decentralization ?

Centralization of foodstuffs, I apprehend is ruinous. Decentralization easily deals a blow to black-marketing, saves time and money in transport to and fro. Moreover, the villager who grows India's cereals and pulses knows how to save his crops against rodents. The movement of grain from station to station makes it liable to be eaten by rodents. This costs the country many millions and deprives it of tons of grain, every ounce of which we badly need. If every Indian were to realize the necessity of growing food wherever it can be grown, we should most probably forget that there was scarcity of foodstuffs in the land. I have by no means dealt fully with the fascinating and absorbing subject of growing more food, but I hope I have said enough to stimulate interest and turn the wise towards the thought of how every individual can help in the laudable enterprise.

How to Deal with Shortage

Let me now show how to deal with the three per cent of grains we might possibly get from outside. Hindus observe a fast or a semi-fast every eleventh day per fortnight. Muslims and others are not prohibited from denying themselves, especially when it is for the sake of the starving millions. If the whole nation realized the beauty of this partial self-denial, India would more than cover the deficit caused by the voluntary deprivation of foreign aid.

Personally I hold that rationing has very limited use if any. If the producers were left to themselves, they would bring their produce to the market and everyone

would get good and eatable grain, which today is not easily obtainable.

President Truman's Advice

I shall close this hurried review of the food crisis by drawing attention to President Truman's reported advice to the American people that they should eat less bread, and thus save the much-needed grain for starving Europe. He added that Americans would not lose in health by the recommended act of self-denial. I tender my congratulations to President Truman on this philanthropic gesture. I must decline to endorse the suggestion that at the back of this philanthropy there is the sordid motive of deriving a pecuniary advantage for America. A man must be judged by his action, not the motive prompting it. God alone knows men's hearts. If America would deny herself for the sake of hungry Europe, should we fail to do this little act of self-denial for ourselves? If many must die of starvation let us at least earn the credit of having done our best in the way of self-help which ennobles a nation.

Let us hope that the Committee that Dr. Rajendraprasad has called together will not disperse without presenting a workable solution of the food crisis that faces the country.

Birla House, New Delhi, 6-10-'47

Harijan, 19-10-1947

Referring to his remarks about food control yesterday, Gandhiji said that he was convinced his suggestion would remove the major part of the problem of food shortage within twentyfour hours. Whether the experts would accept it or not was a different question.

Birla House, New Delhi, 7-10-'47

Harijan, 19-10-1947

36

FOOD SHORTAGE

Gandhiji said in his post-prayer speech that the system of control and rationing in his opinion was unnatural and unbusinesslike. They had plenty of fertile land, there was enough water and no dearth of man-power. Why should there be food shortage under these circumstances. The public should be educated to become self-reliant. Once they knew that they had got to stand on their own legs, it would electrify the atmosphere. It was well known that fright took a larger toll of life than actual disease. He wanted them to shed all fear of calamity if they took the natural step of self-help. He was convinced that removal of food control would not result in a famine and deaths from starvation.

Birla House, New Delhi, 10-10-'47

Harijan, 19-10-1947

37

REMOVE CONTROLS

The committee appointed by Dr. Rajendraprasad had finished its deliberations. It was to consider the question of food only. But he (Gandhiji) had expressed his opinion some time ago that control over food and cloth should be removed without further delay. The war was over. Yet the prices were going up. There was food in the country and cloth too. Yet it did not reach the people. It was a sad state of affairs. The Government was trying to spoon-feed the people. Instead of that the people should be thrown on their own resources. The Civil Service was used to carrying on work from their offices. The red tape and the files controlled their activity. They had never come in contact with the peasants. They did not know them. He wished they would be humble enough to re-

cognize the change that had come over the people. Their initiative should not be strangled by the controls. They should be allowed to be self-reliant. Democracy should not result in making them helpless. Supposing that the worst fears were realized and removal of controls made the situation worse, there was nothing to prevent them from reverting to them. Personally he believed that it would greatly ease the situation. The people would begin to exert themselves to solve the problems and have little time to quarrel among themselves.

Birla House, New Delhi, 17-10-'47

Harijan, 26-10-1947

38

REMOVE FOOD CONTROL

In his post-prayer speech Gandhiji said:- In view of the fact that Dr. Rajendraprasad has called a meeting of the Premiers or their representatives and others to help and advise him in the matter of food control, I feel that I should devote this evening to that very important question. Nothing that I have heard during these days has moved me from the stand I have taken up from the beginning that the control should be entirely removed at the earliest moment possible, certainly not later than six months hence. Not a day passes but letters and wires come to me, some from important persons, declaring emphatically that both the controls should be removed. I propose to omit the other, i. e. cloth control for the time being.

Control Breeds Evil

Control gives rise to fraud, suppression of truth, intensification of the black market and to artificial scarcity. Above all it unmans the people and deprives them of initiative, it undoes the teaching of self-help they have been learning for a generation. It makes them spoon-fed. This is a tragedy next only, if indeed not equal, to the fratricide on a vast scale and the insane exchange of popu-

lation resulting in unnecessary deaths, starvation and want of proper residence and clothing more poignant for the coming inclement weather. The second is certainly more spectacular. We dare not forget the first because it is not spectacular.

This food control is one of the vicious legacies of the last world war. Control then was probably inevitable because a very large quantity of cereals and other foodstuff were exported outside. This unnatural export was bound to create a man-made scarcity and lead to rationing in spite of its many drawbacks. Now there need be no export which we cannot avoid if we wish to. We would help the starving parts of the world, if we do not expect outside help for India in the way of food.

I have seen during my lifetime covering two generations several God-sent famines, but have no recollection of an occasion when rationing was even thought of.

Today, thank God, the monsoons have not failed us. There is, therefore, no real scarcity of food. There are enough cereals, pulses and oil seeds in the villages of India. The artificial control of prices, the growers do not, cannot understand. They, therefore, refuse willingly to part with their stock at a price much lower than they command in the open market. This naked fact needs no demonstration. It does not require statistics or desk-work civilians buried in their red-tape files to produce elaborate reports and essays to prove that there is scarcity. It is to be hoped that no one will frighten us by trotting out before us the bogey of over-population.

Advice of Experienced Men

Our ministers are of the people, from the people. Let them not arrogate to themselves greater knowledge than those experienced men who do not happen to occupy ministerial chairs—but who hold the view strongly that the sooner the control is removed the better. A physician writes to say that the food control has made it impossible for those who depend upon rationed food to procure eatable cereals and pulses and, therefore, he says the people needlessly suffer from ailments caused by rotten stuff.

Democracy And Trust

In the place of controlled food, the Government can easily run the very stores for selling good grains which they will buy in the open market. They will thus bring about automatic regulation of prices and set free the hoarded cereals, pulses and oil seeds. Will they not trust the grain dealers and growers? Democracy will break under the strain of apron strings. It can exist only on trust. If the people die because they will not labour or because they will defraud one another, it will be a welcome deliverance. The rest will then learn not to repeat the sin of being lazy, idle or cruelly selfish.

Birla House, New Delhi, 3-11-'47

Harijan, 16-11-1947

39

REMOVE CONTROLS

Gandhiji said in his post-prayer speech that he had the pleasure of meeting the Ministers from the various Provinces or their representatives who had come to Delhi to assist Dr. Rajendraprasad in coming to a decision upon the recommendations of the Committee of non-officials, which the Food Minister had called into being and which had presented its report to him. When, therefore, Gandhiji heard about the meeting he asked Dr. Rajendraprasad to give him an opportunity of addressing them in the hope of being able to clear their doubts, if they had any. For, he (the speaker) felt quite sure of the stand he had taken up. Dr. Rajendraprasad readily accepted his proposal and Gandhiji was glad to meet old friends. He (Gandhiji) had been saying that so far as his opinion on the communal trouble was concerned, he had become a back number, but he was glad to be able to say that such was not the case with reference to his stand on the food question. He had held the view that there should be no food control nor cloth control, as long ago as when Mr. Casey, the Governor of Bengal, and he

had the pleasure of having several interviews. At that time he did not know whether he had any backing or not. But during the recent controversy he was agreeably surprised to discover that he had a very extensive backing from members of the public, unknown and well-known. Among the voluminous correspondence he had on the subject, he could not recall a single writer who dissented from him. He knew nothing about the view held by magnates like Shri Ghanshyamdas Birla or Lala Sri Ram, nor did he know that he was to have any support from the Socialist circles except when Dr. Ram Manohar Lohia met him and expressed his wholehearted approval of the ground he had adopted. He had no hesitation in suggesting that in the circumstances that faced the country on the food question Dr. Rajendraprasad should be guided by one member or more from his committee rather than by the permanent staff.

Birla House, New Delhi, 6-11-'47

Harijan, 16-11-1947

40

IN PRAISE OF DECONTROL

[The following extracts are taken from a very long thesis sent by a correspondent in favour of decontrol at least so far as food is concerned. —M. K. G.]

"By reducing rations from 1½ lb. to ¾ lb. the Government has further created a bigger vicious circle. The more the ration is reduced, the more the secret hoarding by the agriculturist. He knows that the lesser is the ration the greater is the demand of the black market and the more his earnings. He will hoard secretly and the correct figures of food grain production will not come to the Government. The lower production figures will cause a stir in the Government Department and they will contemplate a further reduction in the ration! The Government thus put themselves in anxiety and

also plunge the whole country in it. The vicious circle thus goes on!

* * *

"If we think over what we import and what is being spoiled and thrown away at storage places, it will be realized that our wastage is greater than the imports! Hence we must not import. We must reduce wastage.

"If grain is sold freely, as in normal times, will a housewife allow a single grain to be spoiled and wasted? She will look after it, clean it, store it very carefully, will again look after it at intervals and make such arrangements that not a single grain has to be thrown away on account of its being spoiled. If we compare this with the Government policy and their arrangements for storing food grains, we fail to understand how the leaders at the helm of affairs and now governing us, coming as they do from the public, do not know the practice followed all over the country and how they do not follow the simple and practical procedure instead of carrying on as they are doing today. Why have our leaders kept themselves entangled in the net created for us for specific reasons by their predecessors, the British? How is it that things do not become clear to them? Why are they guided by the figures put before them by the officers which in some cases are neither complete nor accurate?

* * *

"Food crop production is not less today than what it was six years back. The corresponding increase in population is not also excessive. In rationed areas false increase in population is seen to a certain extent by issue of fictitious ration cards. During the war period a large quantity was supplied to the military with certain unavoidable wastages. Foodgrains were also supplied to the Middle East. These conditions do not obtain today. The public was then given 1¼ lb. daily ration. Thus, it seems more stock was then available for the purpose than today. Six years back, in every house people stored their requirements for a period of a fortnight

or more up to two years according to their capacity. In every village, grain was stored according to old custom in underground stores. Every merchant whether in village, urban area or city, had big stocks of grain. Wherever we went, godown full of grains were seen. There were heaps of foodgrains. Where has all that gone? Why has it disappeared from all over the country? Why do everywhere people talk of famine? Today, neither the consumer nor the businessman nor the Government has any stock. If the production is less, naturally there cannot be any export. It must be lying somewhere. How can it be brought out? The public is showing a critical tendency towards the Congress. There must be some good reason for their doing so, and this change in their attitude should not be ignored. The Congress, which is in power, is not able, owing to defects in the present procedure, to give to the public what as a matter of fact is really available in the country, and the public is displeased and interested parties are taking advantage of this situation to make the Congress unpopular. It is only the Congress which can maintain peace in the country and if it once loses its hold over the public, which may happen if the situation does not show signs of improvement and is allowed to deteriorate from day to day as it is doing, it will be very difficult, if not impossible, for it to avoid the storm that may come."

Harijan, 23-11-1947

41

THE QUESTION OF CONTROL

Addressing the prayer gathering Gandhiji said :—"I must keep you for a moment over the much debated question of control. Must the voice of the people be drowned by the noise of the *pandits* who claim to know all about the virtue of controls? Would that our ministers who are drawn from the people and are of the people listen to the voice of the people rather than of the controllers of the red-tape which, they know, did them infinite harm when they were in the wilderness! The *pandits* then ruled with a vengeance. Must they do so even now? Will not the people have any opportunity of committing mistakes and learning by them? Do the ministers not know that they have the power to resume control wherever necessary, if decontrol is found to have been harmful to the people, in any instance out of the samples, by no means exhaustive, that I am giving below? The list before me confounds my simple mind. There may be virtue in some of them. All I contend is that the science, if it is one, of controls requires a dispassionate examination and then education of the people in the secret of controls in general or specified controls. Without examining the merits of the list I have received I pick out a few out of the samples given to me: Control on Exchange, Investment, Capital Issues, Opening branches of Banks and their investments, Insurance investments, all Import and Export of every kind of commodity, Cereals, Sugar, *Gur*, Cane and Syrup, *Vanaspati*, Textile including Woollens, Power Alcohols, Petrol and Kerosene, Paper, Cement, Steel, Mica, Manganese, Coal, Transport, Installation of Plant, Machinery, Factories, Distribution of cars in certain provinces and Tea plantation."

Every citizen, Gandhiji said, whether rich or poor, was expected not to use more foodstuff than was necessary whilst the feeling of scarcity of food lasted. When control was lifted, naturally, the expectation would be

that the growers would willingly give up hoarding and make available for the public, on fair returns, the cereals and pulses they were holding, and the grain-dealers would think more of selling the grain at the cheapest rate possible consistently with a reasonable profit for themselves, and the Government would be expected to loosen and finally give up the control by the earliest possible moment.

Birla House, New Delhi, 17 & 18-11-'47

Harijan, 30-11-1947

42

GOVERNMENT'S DILEMMA

The last subject Gandhiji referred to in his after-prayer speech was the proposed removal of controls especially on food and cloth. The Government had hesitation in removing the controls because they fancied that there was real scarcity of foodstuffs and cloth in the land and that, therefore, there might be an inflation of prices which would hit hard the poor people, who were supposed, through these controls, to keep the wolf from the door and cover their nakedness. They suspected the honesty of the merchants, the growers and the middlemen. They feared that they were waiting hawk-like for the day of removal of controls so that they might prey upon the poor people and fill their pockets with ill-gotten gains. It was for them a choice between two evils and they considered the present control as a lesser evil.

Appeal to the Business Class

Gandhiji, therefore, appealed to the mercantile classes, growers and middlemen to disarm the suspicion and assure the authorities that decontrol would not only not lead to inflation but would lead to the comparative happiness of the poor people, and ease if not eradicate black-marketing and corruption.

Birla House, New Delhi, 22-11-'47

Harijan, 30-11-1947

43

CONTROLS

Dealing with controls Gandhiji said that it was good that the control on sugar had been removed. It was now up to the factory-owners and the dealers to see that there was no rise in prices because of the removal of the control. He would understand a rise in prices owing to a rise in the price of sugarcane and a corresponding rise in the price of sugar. But in no case should the rise be due to the greed of the factory-owners and dealers. The factory-owners should combine so as to prevent any rise in the price of sugar except for the rise in the price of sugarcane. Honest behaviour in the case of sugar would accelerate the removal of the control on foodstuffs and cloth. The speaker mentioned that *gur* was any day superior to sugar. It was prepared in the villages. This should always be cheaper than sugar and easily available.

Birla House, New Delhi, 29-11-'47

Harijan, 7-12-1947

44

CONTROLS

Control on cloth and food would soon go, Gandhiji hoped. What was their duty after that? He expected the *kisans* to bring forth all the grain that they had stored, and he expected the merchants not to indulge in profiteering, so that the Government and the people and the permanent service might cease to feel uneasy. Today there was apprehension in their mind. He hoped these fears would be falsified and that the black market nuisance would abate, if it did not disappear altogether. If there was some shortage, the people would automatically exercise self-control, so that no one need starve. The people's government could not shoot all profiteers.

In democracy the people's will must rule, and if the people of India had fallen so low that they would not do the right thing, he did not know that the present Government should hold office. But his hope was that with the removal of the control, the situation would improve all round. It would be a negation of democracy if the Government did everything and the people did nothing or thwarted the former. There was no reason why the *kisans* could not grow more food with proper guidance. If the Food Department would concentrate on ways and means of increasing production, he was sure that there would be no food shortage.

Birla House, New Delhi, 5-12-'47

Harijan, 14-12-1947

45

CONTROLS AGAIN

In his post-prayer speech, Gandhiji said :— Sugar control has gone and control on cereals, pulses and cloth will go. The object of the removal is not to lower the prices at a bound, it is to return to normal life. Superimposed control is bad any day. It is worse in this country in that we are a nation of millions spread over a large area 1,900 miles long and 1,500 broad. I need not take into account the division of the country. We are not a military nation and we grow or can grow our own foodstuffs and enough cotton for our requirements. When this control is removed, the nation will breathe free, it will have the right to make mistakes. This ancient method, of progressing by making mistakes and correcting them, is the proper way. Keep a child in cotton wool and stunt it or kill it. If you will let it develop into a robust man, you will expose his body to all weathers, teaching him how to defy them. Precisely in the same manner, a government worth the name has to show the nation how to face deficits, bad weathers and other handicaps of life

through its own collective effort instead of its being effortlessly helped to live anyhow.

Meaning of Decontrol

Thus considered decontrol means that the business of foresight is transferred from the few members of the Government to the millions composing the nation. The Government will have new tasks to perform towards the nation so as to enable it to discharge the duty devolved upon it. Methods of transport have to be put in order, and those of growing more food have to be brought home to the people and to that end the agricultural department has to learn how to serve the small grower rather than the capitalist grower. The Government has on the one hand to trust all arms of the nation as well as to watch and check their movement, regard being had always to the interest hitherto neglected of the small grower, who represents the largest majority of the millions. He is the consumer of his own crops reserving a small percentage for the mere consumer who, in exchange for the foodstuffs he gets, gives cash for buying the other necessaries of life. Control has meant less payment to the grower than he would otherwise command from the open market. Hence, to the extent that he gets a higher price, the prices of food must rise. These, the consumer will not grudge. The Government has to see that in the new set up the whole of the percentage in the rise of prices goes to the grower. This has to be made clear to the public from day to day or week to week as the case may be. The wealthy factory owners or middlemen have to work in co-operation with and in subordination to the Government. I understand that the process is going on. There should be perfect co-ordination among these few men or corporations who have hitherto exploited the poor for their selfish purpose and have not hesitated to enter into unhealthy rivalry among themselves. This has to go especially in the case of food and cloth where the profit motive is to be wholly absent. Any successful attempt at adding to their profit owing to decontrol will defeat its purpose.

Let us hope that these monied interests will rise to the occasion.

Birla House, New Delhi, 8-12-'47

Harijan, 21-12-1947

46

STOCK GRAIN IN VILLAGES

Shri Vaikunth Lallubhai Mehta writes to say that in view of general decontrol it is imperative that there should be sufficient grain stocked in the hands, if possible, of the village *panchayats*, not for profiteering, but as insurance against scarcity by whatever cause induced. His original letter is in Gujarati which I have reproduced and dealt with in the Gujarati columns. Here has been given the pith of his argument. I have always held that whatever may be said in favour of cash payment of taxes, its introduction injured the nation to the extent that the system of stocking grain in the villages was disturbed. The conservation of grain in the villages is needed for the reason already mentioned. The condition always must be that the growers and dealers must not be greedy and unscrupulous. When this simple honesty becomes common, the consumer cannot be cheated. There is no question of high or low prices when a nation's economics are put on a sound basis and when all parties have an income commensurate with the expenditure required for the necessaries of life.

New Delhi, 22-12-'47

Harijan, 28-12-1947

47

RESULTS OF DECONTROL

In his post-prayer speech this evening Gandhiji quoted certain figures placed before him by Shri Brijkrishna Chandiwala to indicate the results of decontrol in as far as it had gone. The price of *gur* (jaggery) had fallen to eight annas a seer from a rupee. He hoped that it would fall still lower. In his youth *gur* was sold at one anna. The price of *shakkar* had fallen from Rs. 34 to Rs. 24 per maund. One rupee now brought one and a half seers of pulses instead of 14 *chhataks*. The price of gram had fallen from Rs. 24 to Rs. 18 per maund. The black market price of wheat had been Rs. 34 per maund. It had come down to Rs. 24. He was rightly accused of knowing nothing about orthodox economics and the fluctuations of prices. He talked of decontrol in his ignorance, but the consequences would have to be borne by the poor people. The results, however, so far had falsified the fears. The poor seemed to be better off without the control. He had received numerous congratulations for decontrol. He could not appropriate them for many causes and many persons had worked towards the same end. If the middleman and the grower thought more of the whole country than of themselves, he had no doubt that decontrol all round would be an unmixed blessing. All fear about decontrol was due to the supposition that the business community would not play the game. The sceptics distrusted the producer and the middleman. If the majority of the people were selfish and untrustworthy, how could democracy, *panchayat raj* work? Gandhiji would ask the Government to utilize the services of non-civilians equally with those of the civilians. The difference was that the latter were highly paid and the former were volunteers. Each was amenable to law for any fraud.

Birla House, New Delhi, 16-12-'47

Harijan, 28-12-1947

48

PRICES AND DECONTROL

A friend said that where he was living, the decontrol had caused a rise in the price of sugar. Gandhiji said that in other places prices were reported to have fallen. There must be a local cause for a local rise.

Control on Petrol

There was the transport difficulty which came in the way of proper distribution. Dr. Mathai had his difficulties. There was shortage of coal and wagons. The Minister was trying to overcome them as early as he could. India carried on her business when there were no railways. But now when she had them, shortage of transport caused a real difficulty. What was then a proper substitute for or an addition to railway transport? Motor transport at once came to the mind. But that transport could not function if there was no petrol. This pointed to the removal of the control over petrol. He did not know why it should be difficult. One could not do things by halves. If control had to go, it should at least go from petrol. Petrol was not a thing which was required by everybody. The Government might keep enough for their own requirements. They could any day buy petrol in the black market in daylight. If motor transport became easily available, there would be no dearness in the price of salt. He was told that production of salt was fair enough but the difficulty of transport came in the way.

Birla House, New Delhi, 19-12-'47

Harijan, 28-12-1947

49

ADDRESS TO DELHI BUSINESSMEN

Force of Public Opinion

Addressing a meeting of businessmen at Hardinge Library this afternoon Gandhiji said that he agreed that control of prices was unsuitable for India, whatever might be the case elsewhere, least on food or cloth. The Ministers were their servants. They could do nothing against the express wishes of the people. They would not stay in office a day longer than the people wished. In the course of their struggle against the British for the last thirtytwo years they had shown what public opinion could achieve. The British had the force of arms to back them up. The present Government had no such thing to back them. But now they had much more if they had the force of enlightened public opinion.

Reason for Control

The reason for control was the fear of dishonesty and profiteering. Why should a businessman get more for his labours than a labourer for his? In Gandhiji's opinion the truest control came from the honesty of growers, manufacturers and middlemen. It was up to the trading class and mill-owners to dispel suspicion. The businessmen wanted removal of control for the sake of the people and not for the sake of profiteering. Therefore, they were bound to be cent per cent honest. The various associations of businessmen and mill-owners and the general public could strengthen each other's hands for the removal of control. They would then be a more real arm of the Government than the Civil Service. The *Gita* said, 'please the gods and they would please you.' The *devas* there did not live up in the sky. Men were the *devas* as women were and were called *devis*. Only men's modesty prevented them from addressing themselves as *devas*. The men whom the *Gita* described as the *devas* were honest and pure of heart. Then would disappear all shortages.

New Delhi, 28-12-'47

Harijan, 4-1-1948

50

REMOVAL OF CONTROLS

Gandhiji was daily receiving telegrams and letters congratulating him on the removal of controls. It had a miraculous effect all round and the prices had gone down. Although the control on cloth was still there, the price of towels etc., he was told, had gone down. The businessmen knew that he (Gandhiji) was merely voicing the opinion of millions when he said that the controls should go. The goods of the black market were, therefore, coming into the open market and selling at reasonable prices. He was told, too, that there was plenty of sugar to be had. The price was Re. 1 per seer and it was lowered to As. 15 and even to As. 14 very often. He was told that the removal of the control had brought much relief to the people. He could take no credit for what was happening in the matter of controls. The real credit went to the masses whose wish he was voicing. If his personal voice had any effect, the unseemly communal trouble would have ceased long ago. In this matter they dubbed him as a visionary and a madcap. He knew that they were wrong and he was right. If he had been right and practical on many occasions in the past, why was he unpractical in this matter of life and death?

Birla House, New Delhi, 28-12-'47

Harijan, 4-1-1948

51

HOW DEMOCRACY WORKS

[The following is an extract from Gandhiji's reply to a valued correspondent who had warned him against hasty decontrol.]

If decontrol had produced the effect you attribute to it, you should raise your voice, even though you may be alone in doing so and your voice may be feeble. As a matter of fact you have many companions and your voice is by no means feeble unless intoxication of power has enfeebled it. Personally, the bogey of the shooting up of prices by reason of decontrol does not frighten me. If we have many sharks and we do not know how to combat them, we shall deserve to be eaten up by them. Then we shall know how to carry ourselves in the teeth of adversity. Real democracy people learn not from books, nor from the Government who are in name and in reality their servants. Hard experience is the most efficient teacher in democracy. This letter is not to warn you against writing to me and giving me your view of the picture, but it is intended to tell you why I would swear by decontrol even if mine was a solitary voice.

New Delhi, 11-1-'48

Harijan, 18-1-1948

RESULTS OF DECONTROL

From the numerous letters and wires giving me thanks for the decontrols and pleading for more, I pick up the following written in English from a well-known businessman. He reduced to writing his thoughts at my instance :

"As desired by you I am giving below the following data about sugar, *gur, shakkar* and various other foodstuffs showing their present and past prices before decontrol :

	Present Rates.	Rates prevalent during the month of November before de-control of sugar was taken up by you.
Sugar	Rs. 37-8 per maund	Rs. 80 to 85 per maund
Gur Pansera	Rs. 13 to 15 „ „	Rs. 30 to 32 „ „
Shakkar	Rs. 14 to 18 „ „	Rs. 37 to 45 „ „
Sugar Cubes	As. 11 per packet	Rs. 1-8 to 1-12 per packet
Sugar *Desi*	Rs. 30 to 35 per maund	Rs. 75 to 80 per maund

"Thus there is a 50 per cent fall in prices of sugar and its allied products.

FOOD GRAINS

Wheat	Rs. 18 to 20 per maund	Rs. 40 to 50 per maund
Rice Basumati	Rs. 25 „ „	Rs. 40 to 45 „ „
Maize	Rs. 15 to 17 „ „	Rs. 30 to 32 „ „

GRAMS

Grams	Rs. 16 to 18 per maund	Rs. 38 to 40 per maund
Moong	Rs. 23 „ „	Rs. 35 to 38 „ „
Urad	Rs. 23 „ „	Rs. 34 to 37 „ „
Arhar	Rs. 18 to 19 „ „	Rs. 30 to 32 „ „

PULSES

Gram Pulse	Rs. 20 per maund	Rs. 30 to 32 per maund
Moong	Rs. 26 „ „	Rs. 39 „ „
Urad	Rs. 26 „ „	Rs. 37 „ „
Arhar	Rs. 22 „ „	Rs. 32 „ „

OILS

Sarson	Rs. 65 per maund	Rs. 75 per maund."

The figures seem to me to be unchallengable. This belief may be due to my ignorance. If so, the wise ones will please remove it by producing counter-facts which can be tested. I have ventured to accept the foregoing statements because they have found general support from those who are in the know.

Surely, timidity has no place in democracy when people in general believe in and want a particular thing. Their representatives have but to give shape to their demand and make it feasible. A favourable mental attitude of the multitude has been found to go a long way in winning battles.

The facts adduced by my correspondent are startling, if true. This control blesses the rich and curses the poor in whose behalf it is maintained. If monopolies are a fact and work in the manner stated, they have to go without a second's thought.

Birla House, New Delhi, 5-1-'48

Harijan, 18-1-1948

B. AGRICULTURE

53

COMPOST MANURE

An All India Compost Conference was held in New Delhi during the month to consider the question of compost development on the widest scale possible. It was the conception of Shrimati Mirabehn and was presided over by Dr. Rajendraprasad. Sardar Datar Singh, Dr. Acharya and other eminent men in the line took part in it. Several important resolutions were passed by it on schemes for towns and villages. A sub-committee consisting of Shrimati Mirabehn, Shri Shivakumar Sharma, Dr. B. N. Lal and Dr. K. G. Joshi (with Dr. B. N. Lal as convener) was appointed to prepare a skeleton scheme for the provinces. The resolutions emphasized the necessity of "the agricultural utilization of town sewage, sullage and sludge, the utilization of the by-products of the slaughter house and other trade wastes (for example, wool waste, mill waste, leather waste, etc.) and for the composting of other materials like water-hyacinth, cane-trash, press-mud, forest leaves etc."

These resolutions are good and useful if they do not remain merely on paper. The chief thing is whether they would be reduced to practice throughout India. To do so would tax the resources of many Mirabehns. Given the willing co-operation of the masses of India, this country can not only drive out the shortage of food, but can provide India with more than enough. This organic manure ever enriches, never impoverishes the soil. The daily waste, judiciously composted, returns to the soil in the form of golden manure causing a saving of millions of rupees and increasing manifold, the total yield of grains and pulses. In addition, the judicious use of waste keeps

the surroundings clean. And cleanliness is not only next to godliness, it promotes health.

New Delhi, 21-12-'47

Harijan 28-12-1947

* * *

Gandhiji said to his prayer audience that the food shortage was due to deficient production. One potent way of increasing production was proper manuring. Artificial manures, he was told, were harmful to the soil. The compost manure emitted no bad odour. It would save lakhs of rupees and also increase the fertility of the soil without exhausting it.

Birla House, New Delhi, 19-12-'47

Harijan, 28-12-1947

54

MANURE PITS

Generally agreeing with Mr. Brayne's suggestions regarding the need for pulverizing manure pits in villages, but at the same time differing from him in his view that the pits should be six feet wide and six feet deep, Gandhiji wrote :—I know that the pits such as Mr. Brayne suggests are generally recommended. In my opinion, however, superficial burial recommended by Poore is more scientific and more remunerative. The cost of digging is lessened and that of removal avoided altogether or certainly lessened. Add to this the fact that the excreta are turned into manure in almost a week's time, for the reason that the bacteria, which live within six or nine inches of the surface of the earth, and the air and the rays of the sun, act upon the excreta and turn them into sweet manure much more quickly than when the refuse is buried deep.

But the chief thing to remember is not the various methods of disposing of refuse, so much as the necessity of burying all the refuse for the double purpose of promoting the villagers' health and their material condition, through the better yield of their crops which the manure must produce. It should be remembered that organic rubbish other than excreta must be separately buried.

Harijan, 1-3-1935

55

SCAVENGERS ALL

G. I. Fowler states, in his *Wealth and Waste* that a proper disposal of human excreta would realise Rs. 2 per head per year. In the vast majority of cases, all this rich manure is being wasted and disease invited. He quotes Prof. Brultini, from his volume *The Use of Waste Materials*, who says that "nitrogen derived from the 282,000 residents of Delhi is sufficient to fertilize a minimum of 10,000 and a maximum of 95,000 acres." Because we do not know how to treat our scavengers, Delhi of ancient fame has pestilential spots of which we have to feel ashamed. If we all become scavengers, we would know how to treat ourselves and how to turn what today is poison into rich food for plant life. 30 crores of the population of India should mean, according to Dr. Fowler, an annual gain of 60 crores of rupees to the country, if we would but make a wise use of human excreta.

Harijan, 15-3-1935

56

COMPOST MANURE

[There is in Indore an Institute of Plant Industry. It issues from time to time leaflets for those whom it is designed to serve. The first one of these describes the utility and the method of preparing compost manure from farm wastes. As it is valuable for Harijans and village workers who handle cattle-dung and night-soil, I copy below practically the whole of the leaflet incorporating footnotes into the running description of the process. —M. K. G.]

It has long been recognized that adequate and systematic recuperation of organic matter in Indian soils must be part of any successful scheme for intensive agriculture. It is also equally understood that the available sources of farm yard manure cannot supply the quantities

needed, apart from the fact that during the making a large portion of the nitrogen is lost and the final product takes a very long time to attain the most efficient physical condition. Green manuring is perhaps a possible substitute, but under monsoon conditions it is uncertain in most parts of India. The decomposition of green manure in the soil also interferes for the time being with the natural processes of recuperation of available plant food in the soil which play a very substantial part in the maintenance of soil fertility in tropical regions. It is clearly the best course to relieve the soil of the burden of manufacturing humus and enable it to concentrate solely upon the work of recuperation and crop growth. The simplest way of doing this is to prepare humus as a by-product during the routine of farm work, utilizing all agricultural wastes which are not needed as fuel or fodder.

It should be emphasized at this stage that any substitute for farm yard manure must closely resemble humus in composition, and the Indore method aims at and achieves this. The object of the Indore method thus differs radically from that of processes where the aim is to produce a highly nitrogenous active manure whose special utility is similar to that of artificials.

The work carried out at the Institute of Plant Industry at Indore, which was the final outcome of twenty years' attempts by Mr. Albert Howard in this direction, has now proved definitely that these principles can very easily be put into actual practice. The Indore method of compost making supplies a practical technique and opens new avenues for development. The unlimited resources of natural wastes both from the farm and the towns can thus be tapped for use in agriculture. A copious supply of manure is made possible without having recourse to any unnatural measures such as encroaching upon the use of dung as fuel and the export of oil-cakes, at the same time securing economy in the use of artificials which give their best results when reinforced with organic matter.

The problems and underlying principles involved have been discussed and the elaboration of the Indore

method described in the *Utilization of Agricultural Waste* (Howard and Wad, Oxford University Press, 1931). This article gives only a brief working outline of the process as applicable to the Indian cultivator's conditions.

The value of farm yard manure is appreciated in the case of irrigated crops in India, but periodic moderate dressings to fields under dry cultivation are equally essential. The Indore compost method quickly produces larger amounts of richer manure, which is, moreover, actively useful to crops immediately on application, which is not always the case with farm yard manure. Indore compost is ready for use after three months, when properly prepared, and is then a dark-brown or coffee-coloured amorphous substance, containing about 20 per cent of partially decomposed coarse material readily crushed between the fingers, the rest being fine enough when wet(and the colloidal particles therefore swollen) to pass through a sieve of 6 meshes per linear inch. The nitrogen content varies from .8 per cent to 1.0 per cent or more according to the nature of the wastes used. About fifty cartloads of compost per pair of bullocks can easily be made each year by the use of only one-fourth of the fresh dung along with 100 to 125 cartloads of farm wastes of all kinds and half of the quantity of urine-soaked earth which is available from the cattle-shed. The remaining half is also a good manure and can be added directly to fields. If more residues are available, all the dung and urine earth can be utilized to make about 150 cartloads of compost. The cost of making is 8½ annas per cartload of ripe compost at Indore rates of wages (men 7 annas, women 5 annas per day of eight hours).

1. Outline of Indore Method

The main feature of the process is to decompose rapidly a mixture of otherwise useless farm wastes with fresh dung, wood ash and urine earth in pits. The pits should not be deeper than 2 feet and should be 14 feet in breadth. A convenient length is 30 feet. This suits both large and small scale work; for instance a portion

3 feet in length can be filled in 6 days with bedding from under 2 pairs of bullocks. The adjacent portion is next filled, each being subsequently treated as a separate unit. The material is uniformly moistened with a slurry of water containing small quantities of dung, wood ash, urine earth, and fungus starter from an active pit. Actively decomposing compost soon becomes white with fungus growth. This material is then used to start vigorous decomposition in a fresh charge. For the first time when no starter is available fungus growth is stimulated by the addition of a small quantity of green leaves to the bedding when made. Full activity is attained in the starter after 3 to 4 generations. The activity is then kept up by regulating moisture and air by means of surface waterings and turnings assisted by a second addition of starter, this time taken from a pit more than 30 days old. The mass soon becomes very hot and remains so for a long time. The systematic handling secures a good mixture (as shown by its uniform appearance) and a copious air supply at every stage. Moderate watering begins decomposition at once, which continues without a break to the end, producing a very uniform final product.

2. The Making of Pits

Select a well-drained area near the cattle-shed and if possible near a source of water supply. Dig out one foot of earth and spread it on all sides to make a pit, 30 feet by 14 feet by 2 feet; such pits should be arranged in pairs, the long side being east to west. The distance between two pits in a pair should be six feet and the pairs themselves should be twelve feet apart. The final heaps and monsoon heaps are made on these broad spaces which are also useful for removal of manure by carts directly from each heap.

3. Earth and Urine

The urine passed by cattle is rich in valuable manurial matter and this is mostly wasted in the usual method of making farm yard manure. A pakka-floor in the cattle-shed is both costly and unsuitable for the bullocks. A

soft, warm and dry bed on which cattle may rest and sleep can be made cheaply of loose earth. Convenient sources are threshing-floor sweepings, silt from choked drains and earth from silage pits. A flat 6 inches layer is sufficient to absorb all urine without nuisance, if wet patches are scrapped daily and thinly covered by a little fresh earth and with uneaten fodder from the manger over it. This urine earth should be removed and replaced every four months by a fresh layer. The finer portion should be reserved for compost making and the bigger lumps directly added to fields. It is a rapidly acting manure specially suitable as a top-dressing for any irrigated crop.

Harijan, 17-8-1935

57

COMPOST MANURE

(Contd.)

4. Cow-dung and Ash

Only a quarter of the daily supply of fresh dung is needed ; this is applied as liquid ' slurry ', being mixed with water ; the rest can be made into fuel if required. Wood ashes from the kitchen and other places should be carefully collected and stored under cover.

5. Farm Wastes or Kuchra

Every type of vegetable waste not otherwise needed on the farm can be made into compost, e.g. weeds, stalks of cotton, pigeon pea, sesamum, safflower, niger, linseed, rape, black and green gram, sugarcane trash, stools of juar, and sugarcane, fallen leaves of trees and uneaten residues of grass, straw, juar and other fodders. Hard materials require cracking. This has been successfully done, even on soft unmetalled roads in Sind, by simply spreading such material on a cart track and periodically removing crushed portions and replacing them by unbroken stuff. Very hard residues like stumps and roots

require (in addition to cracking) soaking in water for at least two days, or burial with moist earth for two to three months before they can be successfully utilized. The latter can be done easily during the monsoon period. Green materials must be partially dried and then stacked. Small amounts of various kinds of residues should be stacked together, while separate *ganjis*, i.e. stacks, must be made for larger quantities of any single material. At the time of removing to the compost pit care must be taken to get a mixture of all types, no single material ever exceeding 1/3 of the total amount thus removed. The very hard soaked or softened residues should be used only in very small quantities at a time. This is really automatically achieved by the proportions of different residues normally available if they are stored and used in quantities which will ensure a steady supply all round the year. The quality of the compost can be further improved by using for it a kharif-sown catch-crop of *sann* or other legume harvested green, and stacked after withering. The land will be clear in time to sow a *rabi* crop which will also benefit by the *sann* having been grown.

6. Water

It is a saving of labour and an advantage if household waste water is led to a small pit or sunk tub near the compost area and utilized every day. Any kind of water which has long been lying stagnant is harmful. Additional water required must be secured by other means. Between 50 to 60 four-gallon kerosene tins of water are necessary to prepare one cartload of compost according to season.

7. The Process in Detail

Filling the pits with bedding: Take a *pal* or a stretcher made of a piece of gunny sacking 4 feet by 3 feet the longer edges being fastened to two bamboos each 7 feet 6 inches long. Up to one *palful* of farm wastes for each bullock and one and a half *pals* for each buffalo should be spread every day on the floor of the cattle-shed

on which the cattle rest and sleep. The material thus gets impregnated with urine as well as mixed and crushed by the animals. The bedding in the rainy season is made by sandwitching a layer of green withered stuff between two of dry wastes specially reserved for the purpose. Fresh dung left over after making the slurry can either be made into *kurdas*, i.e. dried dung cakes, or spread over the bedding in lumps not bigger than a small orange. The portion of the urine earth and fungus starter also left over after making the slurry is then scattered over the bedding next morning when it is removed by spades and *pals* from end to end of the floor to be directly dropped in pits and spread in thin layers by rakes. Every such layer is then moistened uniformly by the slurry containing ash, dung, earth and fungus starter in small amounts. After the removal of all bedding the floor is swept of all finer portions which are then added to the pit as a surface layer. The top layer is wetted by sprinkled water and soaking is completed by further sprinklings in the evening and next morning. A pit, or a portion of it according to the quantity of waste material available, must be filled to the top in six days. A fresh charge in another portion or pit should then be begun. Trampling while charging is *harmful* as air is excluded.

During the monsoon rains the pits get full of water. When the rains begin the contents should be removed and heaped on ground level taking advantage of the routine turnings. During the rains fresh compost should be made on the ground in heaps 8 feet by 8 feet by 2 feet with vertical sides, and closely grouped together on the broad spaces so that they are protected from cold winds.

8. Turning and Watering of Compost

The surface of the decomposing compost is kept moist by weekly sprinkling of water. It is necessary to restore moisture and air in the interior at intervals and hence 3 turns have to be given, accompanied by watering to make up for lost moisture. In wet weather the quantity of these waterings may be lessened or no water may be

added, but the water during the first filling or stacking must be added in all seasons.

9. First Turn after about 15 Days

Remove the undecomposed surface layer from the whole pit and use it as part filling for a fresh pit. Scatter compost about 30 days old over the exposed surface and sprinkle water over the top till well moistened for about six inches. During this first turning the pit is divided lengthwise and the half on the windward side is left undisturbed. The other half is then thrown over it (a wooden rake is convenient for this). The material should not be taken off layer after layer but as far as possible from the top to the bottom of the pit by a vertical or slanting stroke. Every layer of the turned material, about six inches thick, must be soaked with sprinkled water. In the monsoon the whole heap may be turned to avoid too much height.

10. Second Turn after One Month

The material in one half of the pit is simply raked as above on to the other vacant side of the pit with adequate watering, the same care to mix it from top to bottom being taken.

11. Third Turn at the End of Two Months

The compost is similarly transferred by shovels to the surface on the broad spaces and watered. The material from two pits can be conveniently shovelled on to the space between to make one heap 10 feet broad and 3½ feet high; the length is immaterial and several pits or heaps can thus be stored together. If convenient the manure after moistening well may be directly carted from pits to the field. The heap should be made on the spot where the product is to be used, thus saving valuable time at the sowing season. All heaps should be dressed to vertical sides and flat tops to prevent excessive drying which stops decomposition.

Good compost gives no smell at any stage and the appearance is uniform throughout. If smell or flies appear

it is a sign that more air is wanted and the pit should therefore be turned and a little ash and dung added.

The quantities required in individual cases can easily be found out by simple calculations with the help of the following data:

12. Quantities Required for 40 Animals

Filling into pits every day for six days.

Bedding and sweepings removed to the pit in one day; 40 to 50 *pals* after scattering on it 4 *tagaris* i.e. sheet iron basins being 18 inches diameter by 6 inches depth, of fungus starter, 15 of urine earth and excess of dung if not used as fuel.

Slurry: For one day's output from cattle-shed 20 kerosene tins (4 gallons) of water, 5 *tagaris* of dung, 1 *tagari* of ash, 1 *tagari* of urine earth, and 2 *tagaris* of fungus starter.

Water: For one day's output from cattle-shed 6 tins immediately after filling, 10 tins in the evening and 6 next morning.

Surface waterings: 25 tins each time.

Water at turning time: 1st turn 60 to 100 tins, 2nd turn 40 to 60 tins, 3rd turn 40 to 80 tins according to season.

Fungus starter at the time of 1st turn: *12 tagaris* ...

TABLE

Volume (in double handfuls) and weights (in lb.) of the contents of a *tagari* or basket.

Material	Volume in double-handfuls	Weight in lb.
Fresh dung	6 to 7	40
Urine earth	20 to 21	22
Wood ashes	15	20
Fungus starter	5	20
For 1st turn starter	6	20

TIME TABLE OF OPERATIONS

Days	Events
1	Filling begins
6	Filling ends
10	Fungus established
12	First watering
15 }	First turn and addition of one month old compost
16 }	
24	Second watering
30 }	Second turn
32 }	
38	Third watering
45	Fourth watering
60	Third turn
67	Fifth watering
75	Sixth watering
90	Compost ready for use

When circumstances do not permit the adoption of the Indore process in full detail its advantages may be partially secured in the following way :

The mixed waste is used as bedding for cattle and the requisite amounts of dung, urine earth and ash scattered over it next morning before removal as already described. The material is then carried to the margin of a field where the manure is to be used, or to some other suitable well-drained place, and stored in heaps not more than 3 inches high and 8 inches broad, and of any convenient length. After the rains have set in the fungus will establish itself in about a month. One full turn is then given choosing a cloudy or moderately rainy day. Another turn or two after an interval of a month will cause the material to rot by the end of the season, given a favourable distribution of rainfall.

A year of waiting is, of course, necessary before the manure is ready and possibly longer if the rains fail seriously.

The resulting manure, though probably rather inferior to compost made in the standard way, will be un-

doubtedly better than ordinary farm yard manure, for even by this modified process hard, woody waste can be rotted easily, thus giving a far larger quantity of manure than is produced in existing village practice.

Harijan, 24-8-1935

FOOD SHORTAGE AND AGRICULTURE

PART II

A. FOOD SHORTAGE

58

PRICE CONTROL

The police often swoop down upon a petty trader and haul him up before the authorities. We are told that it is being done to 'teach them a lesson'. We know to our cost what 'teaching them a lesson' means. The Committee of the Indian Chamber of Commerce have, in an important communication addressed to the Government of India, shown what havoc price control is working. The purpose is avowedly to make the necessaries of life available to the public at a reasonable price and to prevent profiteering. As pointed out in the Committee's letter, "the effect of the measures which the Government have so far adopted has been largely to defeat the end in view. It has been observed that there is a tendency for measures of price control being followed by scarcity of the article concerned, or even its disappearance from the market, unless proper measures are taken by the Government to safeguard against such scarcity or disturbance. Recently, for instance, since the Government of India fixed the sale prices of wheat, further supplies of the commodity in the Calcutta market have become scarce, and indeed the situation has become so serious that perhaps it would be difficult to obtain wheat in the city after some time unless adequate steps are taken in time to maintain supplies. In the United Kingdom also, last year for instance, immediately after the prices of tomatoes and gooseberries were fixed these fruits disappeared from the market." The same story has been received from other places in India. In one place, we are told, it was impossible to get a seer of wheat for one rupee.

The police action is in most cases indiscriminate, and the Committee have rightly adverted to that aspect of the case also:

"At present what is being done is that whenever it is found that a certain article is not being sold in the market, the police, without going into the causes, take indiscriminate action and arrest a few persons here and there for charging prices higher than the maximum or holding up stocks. Although the Committee do not support the action of those who may be holding up stocks and agree that such practice should be checked, they may point out that such indiscriminate action only tends to dislocate trade, and many small dealers consider it better to discontinue trading in the article concerned rather than carry the risk of being thus maltreated."

Then there is unco-ordinated action by various Provincial Governments.

"For instance, in September last, the Government of U.P. fixed the prices of wheat in the Hapur market without any relation to prices in other centres, and at a level which was low compared to the prices of wheat in other provinces and markets of India, particularly in the Punjab. The result was that, while dealers in other parts of India, e.g. in Calcutta, who had previously contracted for purchases of wheat in the Hapur market at certain rates could not get supplies from the market, large quantities of wheat were attracted to the Punjab market where the prices were higher."

There are other aspects of the matter into which we need not go. To end the anomalies and hardships pointed out above, the Committee have proposed that, if the price control measures are to succeed,

"(1) The maximum fixed by the Government must bear proper relation to the replacement costs; and

(2) The Government must be prepared to sell the articles concerned at those rates — the prices to be fixed after taking into consideration the total cost of production, transit expenses, availability of raw material, wages and other factors, including reasonable profit."

This is an eminently sound proposal, and Government should have no difficulty in giving effect to it. The Committee have made suggestions in this behalf. The

Government, they suggest, should, after fixing the maximum prices, establish a few large granaries in different centres of the country and be prepared to sell at that rate any number of bags to customers retail or wholesale. The Government's readiness to sell at a particular price will prevent traders from putting up the prices, as is actually the case with regard to silver.

The proposal should be carefully considered at the Price Control Conference to be held in the first week of February, in consultation with representatives of various trades, and an end should be put to a situation which may soon get out of control.

Sevagram, 1-2-'42 M. D.

Harijan 8-2-1942

59

GOVERNMENT CONTROL OR PUBLIC CONTROL ?

[A friend having great experience sends the following note.]

While the shortage of foodstuffs is partly due to the deficit in the total supply caused by the stoppage of rice imports from Burma and wheat imports from Australia, coupled with exports of wheat from India, the position has been greatly aggravated by the inefficient handling of the entire situation by the authorities in this country. Unless suitable measures are taken to rectify the defects of the present administrative control, the growing scarcity of foodstuffs in the country as a whole may lead to consequences, the implications of which may be very grave and widespread.

It is common knowledge that India is normally self-sufficient in respect of the total food requirements of her people. Virtual cessation of rice imports from Burma, which on an average amounted to nearly 14 lakhs of tons during the last three years, and of the small quantity of wheat imported from Australia, would no doubt cause a considerable deficit in the total available supply of rice

and wheat for internal consumption. But it should be remembered that, against the imports of 14 lakhs of tons of rice from Burma, India's total production of rice was as much as 24 million tons in 1938-39 and 25 million tons in 1939-40. We may add to this the production of other food grains which amounts to nearly 23 million tons. The deficit caused by the cessation of imports thus hardly amounts to nearly 3 per cent of the total supply. Apart from the gap caused by the cessation of imports, the mishandling of the situation by the Government of India, is, in the main, at the root of the serious position in respect of foodstuffs, which has developed in the market in recent months.

The attempt of the Government to control prices of foodstuffs has proved a complete failure. It is common experience that, far from benefitting the consumer, the recent control of the price of wheat at a maximum of Rs. 4/6 per maund created a regular wheat famine in a number of marketing centres inasmuch as it led to a psychology of panic and hoarding for private consumption. The result has been that wheat is not obtainable at any price in the market. The whole procedure of price control followed by the Government was wrongly conceived and inefficiently executed. They had no machinery for administering distribution of supplies, while whatever private machinery there was, was destroyed by the Government action. If the Government wanted to control the price of wheat, the proper course was to create efficient machinery for purchasing of supplies and distributing the same at cost price. This meant a vast and efficient machinery. That was not set up. The Government announced a maximum price for wheat one morning and then set about the task of searching for supplies. Such amateurish attempt of the Government to control prices without due regard to the machinery of distribution and the cost of replacement, coupled with the terrorizing of the middleman in many places, the restrictions about the method of accounts in provinces like U. P. and the restrictions on the free movement of grain from one place to

another, even from one district to another, seriously dislocated the normal channels of trade and led to public panic with the consequent hoarding for private consumption.

The authorities would, therefore, be well advised to abandon the control over prices, distribution and free movement of food grains. The prices of certain foodstuffs, such as wheat, would tend to rise sharply upon the abandonment of control. But so long as the mass of consumers is not able to get adequate quantities of foodstuffs at the so-called controlled rates, the present policy can only cause artificial scarcity of food grains to the consumer. In most cases the control of prices as instituted by the Government led to a strange result in that all stocks in the market disappeared and the consumer was not able to get the controlled commodities at any price. The conclusion is, therefore, irresistible that the absence of control will be far more in the interests of the consumer than inefficient and incomplete control.

If there is no control, the public have a special responsibility. They must not get panicky and hoard foodstuffs out of all proportion to their normal requirements.

Traders and merchants should realize their duty by the country in these grave and difficult times by giving up all attempts at profiteering. Any policy of hoarding would be a serious danger to their own interests while causing great distress to the nation.

The mercantile community can do what the Government have failed to do.

Harijan, 12-4-1942

60

PRICE CONTROL MUDDLE

The contribution in *Harijan* of the 12th inst. by an "experienced friend" on the price control muddle is to be greatly welcomed. A substantial reason why the present price control should be abandoned is that it has benefitted no one, least of all the consumer. The whole question has to be considered afresh from the point of view not only of the manufacturers and distributors but also of the consumers. One very grave result of the price control policy was not only the driving away of the foodstuffs from the market, but of hitting the poor man hard where these foodstuffs were available. The Government announced the controlled price — without much forethought or consultation with the business community — but failed to make the commodity available at that price. If control had to be applied, it should have been applied to all "articles of daily need". It was applied to prices of articles of food but not to the prices of cloth, kerosene, matches, paper, iron and other articles which have gone up by 100 to 300 per cent — hitting the poor agriculturist hardest, who has profited little by the increase in the price of grains. From his point of view, the control of the price of grain is a terrible disadvantage inasmuch as the only commodity he has to deal with is controlled, while he has to pay through the nose for all other articles of daily need.

In this matter as elsewhere the main trouble is an irresponsible Government. An article in *The Economic Journal of the Royal Economic Society* on German price control during the last war throws a flood of light on the whole question, and shows a way out, if the Government will only care to benefit by it. The writer, Leon Zeitlin, says that conclusions from German experience may be drawn "for the benefit of the British efforts to strengthen the economic Home Front, and at the same

time to try not unduly to disturb the equilibrium of equality of sacrifice."

The very first thing he has pointed out is the determination of the cost of replacement which has a twofold meaning: (1) For the manufacturer it means the cost of production: (2) For distributors (wholesale and retail) it means the price they have to pay for the repurchasing of the same qualities and quantities as they have sold from their stocks. But these costs should be determined by " an elastic system of averaging costs of old and new stock over a period of, say, three months."

The second point mentioned is about the number of goods coming under price control. " An efficient price control demands that the smallest possible number of goods should be exempted from its regulations." That would mitigate the hardship that the poor agriculturist has had to bear in our country.

But the most important of all points, and in our country one of primary importance, is enlisting the services of various trade associations. In independent countries like Britain or Germany, this was a natural course. Such a course would not occur, and even if it did, it would be repugnant to an alien bureaucracy. But the point is that the whole price control would be the woeful muddle it has been, unless the services of the trade associations are utilized for the purpose. This, the writer points out, ' played a more important part in German economic life than similar organizations in other countries. A kind of ' closed-shop ' system was developed, and the associations obtained the right to decide whom they might or might not be prepared to admit as a member. . . The officers of the associations become trustees of the Government by being appointed ' Deputy Commissioners of the Reich '. A special department of the War Office established immediately after the outbreak of the War, which by sequestrating all available stocks of raw materials, controlled not only war requirements but also civil demands, was the centre of this organization. In order to decentralize its manifold and far-reaching economic activities, this de-

partment had set up a considerable number of bodies with special tasks concerning the various industries and trades, and it was these bodies which directed and supervised the semi-official activities of the trade associations."

The writer adds :

> "The Government policy concerning trade associations coincided with their desire to obtain a predominant position in German economic life. The formation of Central Federations of manufacturers, wholesalers, export merchants, retailers and craftsmen was, therefore, encouraged by Government. These Central Federations embraced all associations, corporations and guilds of the respective professions and proved a great help to the Government, because it had then no longer to face the almost unsolvable task of settling the incessant and tedious complaints of individuals or discontented groups. Furthermore, these Central Federations very soon developed into competent and responsible bodies which had to advise the Government in all matters concerning war production and distribution."

This system of enlisting the services of trade associations by changing them into self-governing bodies was "preferable from the point of view of efficiency . . . to the setting up of Committees the members of which are, it is true, most distinguished individuals but not elected representatives of their trades." If this is true in self-governing countries, it is truer still in a dependent country like India where the Government have no relation or responsibility to the people.

The last point is the enactment of legislation against the abuse of economic power. By an Emergency Decree in post-war Germany, "a special Supreme Court was set up with competence to declare null and void agreements detrimental to the common weal, to release members of associations from their obligations, to dissolve associations, to fine associations as well as individuals trying to influence the policy of production, distribution, and prices, etc."

Until steps in this direction are taken, the reasonless, pointless, ineffective and ruinous price control policy must be abandoned.

As to what should be done in the interval, the suggestions made by the businessman-correspondent cannot be bettered.

Harijan, 26-4-1942

61

FOOD RATIONING

A mistake is committed in the working of rationing in India. It consists in charging the cost of collection, transport, storage, and distribution to the price of food. The resulting difference in price between what the producer gets and what the consumer pays is usually not less than 30 to 50 per cent (and often more) of the value paid to the producer. The result of this discrepancy in prices are :

1. The producer is unwilling to part with the grain due to the fear that when short of it, he will have to pay more than what he got.
2. The depressing influence on the producer who hesitates to expand his sowings due to the fear of Government control and interference.
3. The stimulus to the black market due to the wide margin of profit.

It is suggested, therefore, that the incidental costs of food control (collection etc.) should be charged to the Treasury and *the food sold to the consumer at the rate paid to the producer.*

In addition to this, the price of food should be fixed by law for 1 to 3 years ahead, so that the producer and the consumer both know what they will get or pay for food.

Such an apparently simple measure as the changing of the incidental costs of food control to the Treasury will have the following results :

1. knocking out the black market completely,
2. encouraging the 'Grow More Food' tendency,
3. inducing the producer to part with his product, because he knows that he will always get what he needs *at the same rate*,
4. reassuring the consumer as to his future cost of living, and
5. creating a tendency to a uniform and low price of the basic necessities of life.

The revenue necessary to pay the cost of food control on these lines can be created by imposing a progressive tax on all non-rationed and non-controlled articles and highest on luxury articles. Thus the articles of first necessity like food will be subsidized by the purchasers of non-essential and luxury goods.

The proposition can be expressed tersely: the purchaser of goods non-essential to the maintenance of life and health will have to contribute to the costs of collection, transport, storage and distribution of essentials, so that they reach the consumer at the lowest possible price.

MAURICE FRYDMAN

Harijan, 29-9-1946

62

CONTROLS

Speaking at the Convocation of the Tata Institute of Social Sciences, the Hon'ble Shri C. Rajagopalachari stated: "Life is now so developed and so complicated that I am fairly convinced that almost all controls will continue to exist in this world." He added that "controls will not be a temporary but a permanent affair." To an ordinary mortal this seems a paradox.

Though the war has been inactive for nearly two years, yet war conditions still prevail in the country in regard to articles of prime necessities. No doubt the scarcity in commodities has called for regulations of some

kind to ensure a certain measure of social justice. Rationing is still with us. Black-marketing is running rampant. Profiteering seems to be flourishing and the Government is busy with controls. To an onlooker there seems to be something "wrong in the State of Denmark". What that is many people are not able to tell.

The mechanism of price has as its mainspring the law of supply and demand. Therefore, any control of commodities and their prices must take the form of regulating the supply and demand. Rationing attempts to regulate the demand but there is a complete absence of any attempt to regulate supply. The present method adopted by the Government to control the prices is like setting the clock going by constantly turning the minute hand. What we want is to set the mechanism in order and the clock ought to work on its own. This artificial regulation of prices has been largely responsible for black-marketing. The prices have to be regulated automatically, not by a fiat of the Government. The Government has been playing King Canute trying to stop the rising tide of black markets and profiteering; but the method adopted has been a total failure. In fact, great many of the dealers in commodities desire to have the controls on a permanent basis because it provides them the opportunity for black-marketing. Corruption in high places has also been interested in perpetuating controls. It is high time that these matters are set right by the popular ministries now functioning.

If we wish to avoid black-marketing, and control supply and demand in the natural way, rationing will take care of the demand but the supply side has to be regulated in the normal way not by merely setting up the prices artificially but by controlling the supply. The Government can do this by stocking a fair amount of articles that are sought to be controlled and holding them in reserve to be sold at fixed regulated prices, in case the stockists are in the market attempting to sell their articles at a higher price. Of course, Government will not

enter into the market as a seller until the merchants themselves by their actions invite the Government to take drastic steps. The Government stocks will be held in godowns merely as a stand-by, watching to see that the merchants do not advance the price unduly. The moment the market prices tend to go up, the Government godowns will be opened and the stock dumped on the market to bring down the prices. The Government holdings need not be more than 10 to 15 per cent of the stock required to be able to effectively affect the market.

This is not a novel measure. It has been tried out successfully in the working of the Bihar Central Relief Committee under private agencies without the aid of law or other government powers — basing our appeal purely on persuasion. Again, in finance, this is the method adopted by the central banks to regulate interest rates which are but market prices for money. For some unknown reason the Government have not followed this well-tried path but have taken to the King Canute method of fixing prices arbitrarily and by so doing driving the commodities underground. It is not too late even now for the Government to change over and gradually decontrol the commodities as the market assumes normal conditions. We trust our governments will take immediate steps to relieve the distress the people are suffering from because of the present methods of control.

J. C. KUMARAPPA

Harijan, 11-5-1947

WARNING SIGNALS

If there is even a modicum of truth in some of the reports that are coming in, it shows a pretty alarming state of affairs. It was only the other day that Shri M. L. Khemka, President of the Marwari Chamber of Commerce, stated before the Editors' Conference at Allahabad that whereas the Secretary, Food Department of the Government of India, had stated that all export of grains had ceased since August 1943, the export list issued by the Calcutta Customs House showed that only during the months of August and September, one single non-Indian firm had exported from the port of Calcutta to foreign countries no less than 22,504 tons of rice valued at over Rs. 94 lakhs. Shri Khemka added that "a closer examination of the export list of Calcutta alone would disclose further export of rice from Bengal". A correspondent writes from Bombay on behalf of the Manager of an Indian Shipping Company:

> "Our line was established in 1917. Since then our cargo vessels have been plying between Hongkong and other Chinese ports besides the various ports in India. Two of our boats were lost during the war to the Japanese. Our new boat arrived only last month. In her very first voyage to a foreign country last week on 14-2-'46, she carried an export cargo of 2,951 bags of *moong dal.*"

In a supplementary note he adds:

> "Last month also the steamers 'Begum' and 'Jalajyoti' have carried about 35,000 bags of pulses and *moong* to Colombo; 26,053 bags of *Lang dal*, 3,011 bags of *tur dal* and 1,612 bags of *moong* were exported in 'Begum'. I further understand that about the same quantity is exported every month within the knowledge of the authorities."

Equally alarming is the report sent by the President, North Bengal Rice Mills Association, Dinajpur. The following is its gist:

"The Government of Bengal suddenly reduced the rate of rice from Rs. 11-8-0 to Rs. 9-8-0 per maund in 1945, and when protest was made by the Rice Millers against drastic and sudden reduction, the stock of rice including the entire stock of raw materials of boiled, half-boiled, moist and raw paddy in the possession of Rice Mills was forcibly requisitioned under the garb of D. I. Rules, in order to deprive the Millers of subsequent increase of rate to Rs. 10-8-0 per maund.

"In 1944, the Government of Bengal procured half a crore of maunds of rice from Dinajpur District at Rs. 13-3-0 to Rs. 11-3-0 per maund and sold the same rice in deficit and rationed areas at Rs. 16-0-0 per maund. The Government thus made a net profit of more than one crore of rupees from the procurement of one district alone. With the reduction of rates of rice in rationed area it became the policy of the Government to impose heavy discount or *Batta* up to Rs. 2-0-0 per maund on rice supplied by the Rice Mills. The Government procured 35 lakh maunds of rice in 1945 from the District of Dinajpur alone at the rate of Rs. 9-8-0 to Rs. 10-0-0 per maund and sold the same at Rs. 14-0-0 to Rs. 15-0-0 per maund. It may be noted that the rice on which Government was deducting *Batta* up to Rs. 2-0-0 per maund was also being sold at the same rate of Rs. 14-0-0 to Rs. 15-0-0 per maund. Thus the Government made a profit of not less than fifteen million rupees. Discount or *Batta* on rice is being imposed on various flimsy and vague grounds, viz., undermilling, off-colour, under-polishing, over-boiled, under-boiled, and many more new categories are being invented every week by the ardent and aspiring high officials who get quick promotion by helping the Government to profiteer at the expense of the over-burdened consumers. Government purchases medium rice even at a lower rate than

coarse rice on assessment of *Batta*, but exports the same in rationed areas as medium rice.

"In 1945 the Rice Mills were compelled to separate *Brokens (Khudi)* from rice which were being used as part and parcel of rice up to 1944. . . . Huge stocks of broken rice have accumulated and in spite of repeated reminders and representations no arrangement has been made for their disposal. . .

"There are innumerable instances where Government neither purchased rice offered by Rice Millers on the ground that rice is bad, nor granted export permit, with the result that the stock has been wasted or used as cattle fodder.

"If the Millers would have been allowed to export the refused rice even within the Province it would have compared far superior to the notoriously deteriorated rice supplied from the Government Stores. Thus the Government is practically depriving many people from getting the minimum quantity of meal which they badly require in these hard days of scarcity.

"Rice Millers have been compelled to supply cent per cent polished rice, and if any grain of rice is found to be of red tinge the rice is declared under-polished and heavy *Batta* is imposed. In polishing rice beyond normal practice there is wastage of one seer per maund and it yields more 'brokens' besides reducing the vitamin contents of rice. Thus the Government is wasting lacs of maunds of rice which can be easily saved."

The insistence on the Rice Millers supplying cent per cent polished rice and the wastage involved in the separation of 'brokens' from rice are nothing short of criminal, if true. An immediate searching enquiry and action are necessary if the tragedy of 1943 is not to be repeated on a vaster scale.

Poona, 23-2-'46 PYARELAL

Harijan, 3-3-1946

64

AN OPPORTUNITY LOST ?

The staple diet of the British is meat. The war upset all customs and traditions. The most conservative of customs is the menu. Yet the force of circumstances has compelled the British to make drastic changes in the kind of food they eat. Naturally, in a meat-based diet cereals play only a secondary role. Still their Ministry of Food is wide awake to the needs of the nation. Today, the one time fashionable white bread is unprocurable. They had realized the folly of throwing away nutritive parts of food while the nation is experiencing a shortage of foodstuffs. Brown whole meal bread rules the day.

Our country affords a striking contrast to this. Ours is a cereal-based diet in which cereals play the leading role. Masses of our people exist on nothing but rice, wheat and other cereals. Our Ministry of Food is so weak-kneed that even the Government ration shops have only polished rice for the people. Have we not lost a golden opportunity of banning rice mills and thus increasing the nutritive value of the food the masses eat ? Is it too late to act even now ?

J. C. KUMARAPPA

Harijan, 26-10-1947

65

A DISMAL PICTURE

A correspondent who knows what he is writing about in a letter addressed to Gandhiji points out that when Government was issuing press notes announcing the first approach of famine, rice was actually being exported from Bengal Ports. Publication of the news that rice was being exported from Calcutta Port in the month of January, 1946 created a great sensation and as a result of pressure

that was brought to bear upon them from various quarters, both the Central and Provincial Governments issued statements assuring that no rice would be exported from Bengal anymore. Nevertheless rice continued to be exported from Chittagong Port. The Bengal Manufacturers and Traders Federation disclosed the fact at a public meeting at Shraddhanand Park, Calcutta, on May 26th. This only evoked a press note (on 28th May) on the part of the Bengal Government to the effect that " rice was exported from Chittagong by the Tipperah State Agency and the Bengal Government was not responsible for it." !

As a further illustration of the inefficient and callous management on the part of the Government the correspondent mentions, what is now common knowledge that " about 30 lakhs maunds of wheat have rotted in the Government godowns during the last twelve months ". He suggests that distribution and preservation of foodgrains should be entrusted to businessmen who must work on nominal commission basis under strict supervision and control of the people's committees.

The Government, he goes on to state, is making a profit of Rs. 4 and Rs. 10 per maund in the case of ordinary and better quality rice respectively, whereas businessmen and rice dealers previously used to make a profit of 2 to 4 annas per maund. On top of this, he says, paddy fields are being acquired by the Government for jute cultivation and workshops. " During the last period, Government occupied a huge area of paddy fields for military camps, air fields and workshops. These fields should be immediately released for cultivation. In 1945, about nine lakhs of *bighas* of land remained uncultivated which was cultivated during the year 1944. Moreover, there are 40 lakhs of *bighas* of land which are yet uncultivated and which may produce a good quantity of food-grains if cultivated."

In the meantime, the spectre of death has already begun to stalk the countryside and even in the streets of Calcutta deaths due to starvation have been reported. " Rice," says the correspondent, " is being sold for Rs. 50

per maund in Dacca and Rs. 45 at Mymensingh, while it costs Rs. 40. to Rs. 30 per maund in other districts. Even in surplus districts rice is being sold for Rs. 20 per maund while previously the normal price of rice was Rs. 4 only per maund. As a record of inefficiency and callous indifference to human suffering this picture is hard to beat. It is bound to arouse widespread indignation. Let us hope that the authorities concerned will allay it by taking prompt and decisive action in respect of the matters complained of.

On the train to Poona, 29-6-'46 PYARELAL

Harijan, 7-7-1946

66

WAYS AND MEANS

Ever since Gandhiji has turned his own and public attention to finding out ways and means of averting the food crisis which faces the country, suggestions have been pouring in on him. Many of these he has already embodied in his statements to the press and articles in the *Harijan*. Here are some more that merit the attention of the authorities where the remedy lies in their hands, and of the general public so far as practical co-operation on their part is concerned.

1. Lakhs of acres of fertile black cotton soil—4 lakhs in Guntur, 6 lakhs in Krishna and Godavari districts, 10 lakhs in the Circars, 20 lakhs in other parts — are being used for the growing of Virginia tobacco. Inasmuch as tobacco and its use is to be condemned as harmful for man, it is a golden opportunity for the owners of these lands to give up its cultivation or restrict it and devote these fertile areas to growing food and fodder crops.

2. The shelled and dried cocoanut, commonly known as *copra* is extensively used for commercial purposes for manufacturing toilet articles such as cocoanut and other scented oils, soaps, etc. . *Copra* may be preserved for a long time without any difficulty and may be used as a

supplementary nutritive diet. It contains a high percentage of good quality vegetable fat as well as minerals and vitamins. The main producing areas are Cochin and Travancore and there are, of course, big interests behind the cocoanut oil industry.

3. A Poona friend sends two samples of *jowar*. 'A' is which the villagers harvested in their fields last season and which was taken away from them under the compulsory levy scheme by Government officials, the producer being paid at the rate of Rs. 6 per Bengal maund of 40 seers. 'B' is of what these same villagers who were compulsorily dispossessed of their produce of 'A' a few months before are now compelled, in order to avoid starvation, to take at Rs. 10/- per maund! This, if true, is a glaring example of the inefficiency, short-sightedness and utter indifference of the official world to the needs and welfare of the poor. Surely local needs should be assessed accurately before exporting a single grain of foodstuffs from any area.

4. From Bihar a friend draws Gandhiji's attention to *mahura* which is an edible commodity but which is also largely used for the manufacture of country liquor. If this latter use were to be drastically cut down, *mahura* could not only supplement the food ration of the villager but would also "cause compulsory saving by labour (in most cases amounting to 25 per cent of their total earnings) and thereby enable them to purchase more milk, vegetables, eggs, etc." *Mahura* can also be utilized for replacing a good portion of the grain consumed by cattle.

5. The manufacture of alcoholic drinks prepared from grains should be stopped immediately.

6. The supply of rice and maize to starch factories should be stopped or curtailed for the time being.

7. A Punjab friend opines that in wheat-growing districts several hundred maunds of unripe wheat crop is daily being consumed by cattle in the shape of green fodder. 200-300 maunds of this unripe wheat would amount to 5000-7500 maunds of grains if allowed to ripen. The friend suggests a scale of rationing of grains

for cattle as for men and substitution for cattle of more green fodder in the shape of *shattala, sarson,* green vegetables and grass.

8. The manufacture of cakes, biscuits, pastries, fancy breads, sweetmeats, etc. in hotels and restaurants is a matter that needs investigation and curtailment.

9. Ceremonial feasts and parties must be stopped.

10. The question of rice has already been touched on by Shri Pyarelal but bears repetition. A correspondent from Dinajpur writes that 30,000 maunds of broken rice are lying and being wasted in the mills there. It may not be sold in the market, whereas, if released, it could feed thousands of hungry mouths. The writer suggests that an inquiry should be held to reveal how much rice Bengal produces, how much is purchased by Government from the mills and what use is made of it, how much broken rice is lying all over the province and whether Government will allow this to be handed over to a food distribution committee specially appointed for the purpose.

11. Professor Ranga fears that, while every effort has been made to assure rations of food to the urban people, very little, if any, thought has been given to assure similar rations for the rural areas. He suggests :

(a) Sufficient remuneration to the peasant for food crops so as to wean him from cultivating commercial crops. The peasant is being starved of clothing, kerosene oil, fuel and other oils. Remunerative prices for foodgrains without the mediation of middlemen would alleviate his distress. Consumers' goods should be made available to him on a system of rationing and a systematic and equitable exchange of agricultural produce for these should be worked out and enforced.

(b) Adequate supply to him at reasonable rates of agricultural implements.

(c) Healthy competition between householders, *kisans* and villagers as to the maximum per capita production and minimum per capita consumption. Those

who produce more may be paid more and may have a greater supply of consumers' goods allotted to them.

(d) Every scrap of unoccupied but cultivable land may be placed at the disposal of individual landless peasants or their co-operative societies on condition that they grow only food crops.

(e) Food grain producers should be persuaded to keep only their annual requirements with them, the remainder to be put at the disposal of village *panchayats* who will see what is needed by non-foodgrain producers and landless labourers, and wisely store and distribute the same.

(f) All surplus foodgrains should be at the disposal of district authorities for distribution elsewhere. There should be a procurement, distribution and rationing authority entrusted with the important task of equitably distributing available foodstuffs.

(g) Rural folk must be persuaded to postpone marriages and other ceremonials, or, at any rate, minimize consumption and wastage of food on such occasions by celebrating them in a communal manner.

(h) Communal feeding centres for artisans and others at low prices will minimize food wastage.

(i) Grain storage may have to be built up for every fifty villages or every taluk in order to ensure timely and adequate supplies of foodgrains to any villages in that or in neighbouring areas whenever a sudden food shortage occurs.

(j) Iron must be placed at the disposal of every taluk and village *panchayat* and iron bands for carts must be given priority so that bullock carts may be at the disposal of the food distribution and procurement authorities for transport purposes.

(k) Military motor lorries must be requisitioned for transport whenever necessary and railway authorities must be prepared to run special trains when urgently needed to do so.

(l) Rural folk need a more liberal allowance of food than townsmen.

(m) Wastage of water must be stopped and wells sunk wherever needed. Repairs of existing tanks and wells should be the duty of the Government.

(n) Forest and other green leaf manure has to be gathered, conserved and transported where required. Freight rates for such transportation should be lowered. The supply of manure to *kisans* is an important one and should be given to *panchayats* or *kisan* organizations for equitable distribution.

(o) Cultivation of root crops which can be raised three or four times in the year should be encouraged

(p) Paddy must be husked by hand and thus the quantity of rice can be increased by at least 10 per cent.

(q) If provincial and district authorities were to take up the task of allowing their grain and pulses to germinate in the scientific manner it may be possible to increase the total quantity of nourishment that can be got of foodgrains by 15 to 25 per cent.

12. Cattle rearing must be encouraged. A friend from Guntur writes that while his is a district famous for good milch cattle such as the Ongole cow, good breeds are being exported daily for military and slaughter purposes.

13. The use of the military, in particular those who are being now demobilized, has been recommended for various types of service in the present crisis. A correspondent says that there is a wide and fertile rice growing valley running from Kalyan to Karjat. Thousands of acres of good land bordering ample water flowing into the sea lies uncultivated from November to June. The water could easily be canalized or wells dug further afield. Obviously rice growers are too poor to do this, but if crops can be grown without detriment to the paddy, why should not Government put several regiments of Indian engineers or other troops on to this task ? This is probably applicable to many other portions of this vast land.

14. Finally, there is the usual and universal complaint against hoarding and black-marketing. The best way to eliminate the black market is for the rich to

abstain from going there. Will they ? Violence is in the very air we breathe today. But violence does not consist only of murder, loot, arson and destruction of property. Greed, selfishness, exploitation, bribery and corruption are subtler and therefore more potent forms of violence. Mob fury abates or can be controlled by superior violence but the latter continue as a canker and eat into the very vitals of society. This can be eliminated by a vigorous public opinion and a true appraisement of moral values.

A. K

Poona, 2-3-'46

Harijan, 10-3-1946

67

FURTHER SUGGESTIONS FOR COMBATING FOOD SCARCITY

1 A friend from the South writes that the policy of the Madras Government is beneficial to neither producer nor consumer for the reason that middlemen take enormous profits at the cost of both. The District Collector appoints wholesale dealers who in turn appoint their own agents. For example, an agent purchases paddy at X village at Rs. 5-9-10 per maund of 32 Madras measures. This is taken to the wholesale dealer's godown four miles away. The same paddy is then returned to where it was produced and sold at Rs. 0-3-5 per Madras measure. The difference between cost and sale prices per maund is Rs. 1-3-6, 21.7 per cent above cost price. All this, after deducting cost of transport, goes into the middleman's pocket. This difference also contributes to hoarding and the creation of a black market. The ryot can easily sell at a price lower than the retail sale price and still get more than what the agent gives him. The consumer too could purchase cheaper from the ryot than from the ration shop.

Of course when the paddy purchased is sold as *rice* the middleman's profit is still higher. Why, in any event,

should not the consumer have paddy which he can himself easily convert into rice by hand-pounding? Apart from physical and material gain this would also afford bran for his cattle. The friend therefore suggests the following remedies:

(a) Paddy to be stocked in godowns in the villages. After enough has been stocked for local needs the remainder may be sent direct to where it is needed.

(b) Ration to be distributed in the form of paddy.

(c) Paddy to be distributed at cost price. Cost of procurement and distribution to be subsidized by the Government.

(d) Ration to be doubled in the case of agricultural labourers or any labourers doing hard manual labour.

2. A friend from Bengal suggests that jute growing should be curtailed to meet local needs. It absorbs a great area of cultivable land which should be used for staple foods.

3. Another friend writes that there is a great deal of grain stocked in some of the States. After meeting local needs they should be asked to co-operate with British India and send the surplus to needy places. A strict watch should be kept so that grain stuffs wherever stocked may not be lost by rotting nor used for profiteering.

4. Every help should be afforded to poor agriculturists in the matter of implements of agriculture. To improve these and supply them at cheap rates to farmers is the duty of the State.

5. A Punjab friend writes that price control, instead of helping the poor man is helping to raise prices and create a black market. He says that *gram* in the Punjab bazars today is selling at Rs. 18/- per maund and that too is available through dubious channels. If control were removed, the price would come down. There is plenty of wheat in the Punjab which is getting black and there is adulteration of flour which is hard to get even at Rs. 13/- or 14/- per maund.

6. Many persons write that every advantage should be taken of the coming mango crop which promises to be a bumper one. Mangoes have good nutritive value for human beings.

7. Oil cakes from groundnut, rape and other seeds can be easily processed into a highly nutritious food for man. This food can be used for making bread and if mixed wih an equal part of wheat *atta* can make *chapatis* also. If more kerosene oil is imported more seeds would be available for the poor to eat.

8. Since food is above politics and parties there should be a special Food Cabinet at the Centre with trusted representatives of the people. This would perhaps be a potent factor in helping to get rid of corruption.

9. The majority of well-to-do people eat too much. They should be educated to realize that health and strength are not dependent on the large amount one eats. In fact it is the other way round.

10. A plea for soya bean has also been made on the ground that it contains protein, fat and carbohydrate value. One part soya bean to three parts wheat gives standard nutrition. If it could be added to the daily wheat ration the latter could be reduced to 9 oz. The writer urges its immediate importation and encouragement for its growth here.

11. Famine conditions offer a golden opportunity for teaching villagers the value of co-operation in all departments of life. But the teaching must be imparted by those who really love the villagers and will become one with them and see that everything is done honestly.

12. A friend who knows writes :

"Regarding the food situation, I have been talking to some young army officers. They are keen and anxious to do all that they can. What they want is a short course in agriculture, and precise instructions as to what they have to do. It would be necessary to attach some agricultural experts with these engineer corps. They have got quite a good amount of equipment in the shape of tractors, jeeps and bull-dozers,

but they must not be expected to produce ploughs. They must be provided with these materials. The army has to be directed by those who know their job. Unfortunately, however, the direction at the centre is exceedingly weak, and wholly without vision. It is good that the Viceroy has taken the matter in his hands, but the Executive which has to handle this vast problem has not yet been organized. The problem in terms of arithmetic is something as follows :

" Our total production of cereals is 60 million tons per annum, out of which 18 millions come in the market. The official estimate of the deficit is 6 million tons — or a third of the entire quantity of grain, which is marketed throughout a year — an enormous quantity to deal with in terms of transport alone. The problem is of an alarming magnitude ; if it is considered that the principal areas requiring immediate help are South Bombay, and the entire Madras Presidency, including Mysore and Travancore. There is a possibility of getting 3 to 4 million tons of grains from abroad, but it would be quite impossible to handle even a quarter of these imports at our ports at the West and South-East coasts. There is neither storage nor facilities for handling the traffic at the ports, or on the rail-road. There is a very considerable danger of people starving, and grain rotting at the ports, or lying unloaded in the ships, simply because the problem has not been worked out in detail. A fully loaded goods train means only 50 wagons, and a train load of 1,000 tons at a time. The time for loading such a goods train is anything upto 3 to 5 days, *if the necessary siding and labour are available.* Add to this the time required for unloading and transit between two points, and you get the measure of the time lag. If we receive three million tons of imports, it would mean 3,000 special goods trains ; at least half of them during the first 150 days or 10 per day — quite an impossible feat even under the best of circumstances. How on earth are we going to manage this with the limiting factor of the Western ports, and the

resources of the railway lines operating only in Southern India? We shall need very much more than what the available railway transport and road transport in the hands of the public as well as the army can do. Unfortunately, nobody either here or in the Central Government has even thought in these concrete terms. I sometimes fear that it is quite impossible to make the Government realize the magnitude of the danger that threatens this country not only this year, but the year after, for the immediate quantity that we want for our existing population is 7 million tons of more prodcution, and 14 millions in 1953 for a population of 45 crores. We cannot, therefore, live on the prospects of charity from abroad, even if it materializes regularly in future.

"The only sovereign remedy is, as Gandhiji has said, self-help, which must be translated into concrete measures to step up our production and to increase the mobility in transit and the effectiveness of storage. The waste, as a result of faulty storing and insect disease, which runs into a very big total, could and should be largely eliminated. The trouble, however, is that the services have got into a rut, and even the Viceroy trying to stir it up cannot succeed, unless the details of the organization are worked out with the completest co-operation between the official machinery and the public organizations. I do hope, therefore, that the change at the centre will take place soon, at any rate, in food, for otherwise we are in again for very bad times indeed. The help from abroad might expose our utter inefficiency, unless the executive responsible for working out the plans wakes up in time, and of this there is no sign whatever."

Poona, 10-3-'46 A. K.

Harijan, 17-3-1946

THE UTILITY OF THE GROUNDNUT

The following is the essence of Dr. A. T. W. Simeons' long article on the groundnut.

He opines that the low stamina of our people is primarily due to lack of protein, vitamins and salts in our diet. During the Bengal famine it was proved that the life of the victim of starvation depended more on administering protein than on starch. He maintains that if more protein could be provided, the net result on the national nutritional value would be infinitely better than of more cereals. Groundnut flour contains over 50 per cent protein and is richer in it than any other known vegetable substance and very edible. An acre of groundnuts can produce many times the quantity of protein than an acre of wheat, millet or rice. And yet we are not making full use of it. 45 per cent of the groundnut crop is taken for the production of oil. "What happens to the remaining 55 per cent? If we can eat whole nuts, why can not we eat them minus the oil? The economist answers, 'because we need the oilcake for feeding our cattle and for manuring our sugarcane and rice fields.'" Dr. Simeons argues that to use an edible protein for this purpose is criminal waste when we have inedible substances like dung, night-soil or guano to enrich our fields. "If we fertilize a sugarcane field with groundnut cake, every grain of protein we plough into the earth is lost; because sugar contains no protein at all — not to mention the loss of 10 per cent of residual oil in the cake, the vitamins and salts.... We feed oil-cake to our milking cattle. The milk output increases and milk is an excellent food, but if we feed a cow 10 lb. of nut protein, it is doubtful if this will produce even ½ lb. of milk protein. Is it worth it when we can achieve about the same result with cotton-seed and other inedible products?"

Dr. Simeons quotes Prof. B. G. S. Acharya who, after controlled rat feeding experiments, has shown that groundnut protein was found to have a high biological value. Experiments, he says, have also established the high digestibility coefficient of groundnut protein. "It ranks with the microbial protein of yeast and closely approximates animal protein as found in milk, eggs and mutton."

"Clean groundnut oil-cake contains over 50 per cent of high grade protein, 13 per cent more than mutton, so that with every ton of oil-cake ploughed into the field, we are using the nutritional value of flock of 50 sheep or 50,000 eggs or 15,000 seers of milk in protein alone."

Besides protein the groundnut contains fat, starch and minerals so that with the addition of a little starch and vitamin C, it is a complete food in itself. The most important vitamin deficiency in India is of the B complex which has a profound effect on the health and longevity of the people. The groundnut is very rich in vitamin B complex, particularly in vitamin B_1, Nicotinic acid and riboflavin, which are the most important factors. Mr. Kincaid, a missionary worker in a remote village of Kolhapur, testified that the children of his school have thrived on a cake made of clean hand-picked groundnut. The villagers have overcome their prejudices and use it as a daily addition of 1/2 to 1/5 portion to their usual cereals. Diabetics particularly have been thankful for the increased bread ration it enables them to enjoy. Children enjoy bread made from flour mixed with groundnut flour, many adults prefer it with a little salt. Groundnut flour can also be used for pastry and sweet-meats.

The controlled price of commercial groundnut is Rs. 75 per ton. Edible groundnut will be more costly. But Dr. Simeons opines that even if the price is higher than the commercial product, it will still be well below the cost of the common cereals.

From the manufacturer's point of view too, the switchover to edible cake will not dislocate either the oil or the groundnut market.

" India is estimated to produce about 1½ million tons of groundnut. Thus, 7 lakhs of tons of the finest food can be made available from this crop." The protein value would be equivalent to 3500 crores of eggs or 1000 crores of seers of milk or 350 lakhs of sheep. The annual loss of starch, fat, minerals, and vitamins is in addition and all due to the wrong use of this valuable nut."

New Delhi, 24-6-'46

A. K.

Harijan, 30-6-1946

69

USEFUL SUGGESTION

Dr. M. A. Chadray sends the following :

The method now in vogue of first grinding grain into flour and then making *chapatis* or bread out of the flour is wasteful. The defects of the method are as follows :

In the process of grinding in mills at a high speed, the properties of protein, starch, cellulose and mineral salts are altered while the fat content is lost, as in the process the flour gets hot. In the preparation of dough of workable consistency, the flour absorbs only half the quantity of water to its own weight, with the result that starch does not swell and in turn makes the food only partly nutritive due to insufficient proportion of water. In the East, the dough is rolled into shapes called *chapatis* and *puris* which can either be cooked or baked, but are fried with ghee or oils, and in so doing only a skin forms on both the sides. In the West, the dough is mixed with yeast for the preparation of spongy bread, but this too is neither fully nutritive nor hygienic as claimed, as the vitamins together with other constituents of food value are destroyed by the alcoholic fermentation due to the action of yeast. Hence, the food prepared with this age-old process is neither tasteful nor hygienic, nor fully nutritive nor easily digestible

and even for partial digestion needs a large quantity of digestive fluids, like bile, gastric juice and pancreatic juice. That a sick person cannot be fed with this food is a popular recognition of this fact. Even biscuits cannot be said to be better. Again, not being easily digestible, it causes constipation, the cause of all disease. Besides, before the preparation of dough, the flour is sieved to remove bran which means a loss. The flour being liable to easy attack by microscopic germs, it cannot be stored for a long time and considerable loss occurs in transport and use, all of which make its use uneconomical.

All these defects can now be surmounted with the process developed after extensive experiments conducted with a view to increasing the nutritive value of cereals, particularly wheat, *bajri* and *jowar* so that the food made out of these cereals can impart immense health.

According to this new process, a known quantity of wheat with about three and a half times water by volume, i e. one pot of wheat and three and a half pots of water, or 1 lb. of wheat and 4 lb. of water, is hydrated by gradually boiling, with or without the addition of a teaspoonful of sugar or jaggery under low heat, keeping the lid on if an ordinary pot is used. Prior to heating, if wheat is steeped in water for about 12 to 18 hours, fuel will be saved. In case a pressure cooker is employed, the ratio of wheat and water should be one to one and three-quarter by weight. The proportion of water to be used varies according to the quality of wheat. In so cooking or boiling, about 2 lb. of water is removed by evaporation and starch, bran and other constituents swell by absorbing water, and wheat becomes meaty. In this manner cooking or boiling should be continued till only a little water is left, which too will be absorbed by the wheat when it cools. Heating should neither be continued till water is completely evaporated, for then hydration will not be sufficient, nor should the water from the pot be thrown out, for if removed it means a loss of soluble constituents of wheat.

When wheat is cooked completely, which can be seen either from its swollen state or by pressing between the fingers to determine the softness, a little salt may be mixed with it to impart taste.

Wheat so cooked should then be masticated or ground to a paste, which can be accomplished with the aid of mincers, or by grinding on a masala stone or by pressing with two wooden pieces. With the use of pressure cooker, wheat inside will be digested to a pulpy dough of workable consistency. The paste so made can be made into shapes like *puris, chapatis* and biscuits by the known method and fried with known fats or oils, for consumption.

In places like Bombay, where at times grain cannot be had but only flour, one may first make a dough of the flour as usual when making *chapatis*, put the dough in a piece of cloth and hang it over a pot of boiling water till the dough gets completely cooked with the steam. *Chapatis* should then be made out of the cooked dough, following the usual process.

The advantage of this new food is that by it about ıftyfive per cent wheat is saved — forty per cent by ıe absorption of about one and threequarter times ıter, ten per cent by retaining bran, and five per cent elimination of wastage. This means that a month's ıision will last for two months. Actually, with this ess, the volume of wheat increases to two and a imes, i.e. one pot on cooking becomes two and a ots. This means that from a quantity of flour d to make four *chapatis* with the old process, ten can be made from the same weight of wheat s process. without altering the thickness and

es, the food is more tasteful, hygienic, nutri- asily digestible as the known and unknown s of food value are retained and evenly dis- s such, its consumption will add a marked eight. Moreover, being easily digestible, it en to sick persons. Also, the process will

facilitate storage of wheat, *bajri*, *jowar* and like grains for a longer time without decay, and will save wastage in transport of flour. Moreover, it will dispense with flour mills.

Above all, this method will mean food for all. The adoption of this activated food in India will save every year about 8 to 10 million tons of wheat costing approximately Rs. 300 to 450 crores at the rate of Rs. 360 per ton and a similar quantity of valuable *bajri* and *jowar*. As such it will eliminate the present scarcity of cereals and will make the future bright for our famished people.

Harijan, 14-7-1946

70

WHAT A FAST CAN SAVE

Indonesia has promised us 50,000 tons of rice
= 2,240 x ½ lakh lb.
= 1,120 lakh lb.
= 112 million lb.

This is enough to feed 112 million adults for one day at the rate of 1 lb. per head.

Therefore, if 112 million adults fast one day, the result is the same as though we got 50,000 tons of rice from Indonesia.

Suggestion :

All adults, except the very aged, invalids and manual labourers should miss the evening meal on Saturdays.

There are 240 million adults in India, of whom 80 million are manual workers.

Therefore, if the average saving by an adult missing a Saturday evening meal is 8 oz., the total possible saving by all adults (except manual workers) missing 26 meals on 26 Saturdays during the remainder of the year would be 2080 million lb. of cereals = .92 million tons of cereals.

This would remove the anticipated food deficiency. All parties, all Governments and all individuals, papers,

etc. should make a drive for the observance of the Saturday evening fast. The sharing by the Indian population of the starvation which is descending on parts of the country will mean in fact sharing of food.

Thus that starvation can be staved off. Besides, those who observe the fast, will in most cases gain in health.

Even if the drive achieves only a 10 per cent success, the grain saved would be 92,000 tons — substantially more than the quantity promised from Indonesia. These 92,000 tons would have been obtained at no cost to the nation, and would represent (on the other hand) saving not only in food but in expenditure by individual families.

(From the *Daily Mail Bag*)

Harijan, 18-8-1946

71

SAVING CEREALS

In view of the present cereal shortage in the country, certain experiments on diet were tried in Maganwadi. The following results which have been tested at Maganwadi will be helpful to save cereal consumption to some extent.

Rationing authorities in certain places are distributing *atta* instead of cereals and as the cereals employed are of lower quality there is a suggestion of adding calcium salt to the *atta* to make it more nutritious. We would suggest an addition to the *atta* of 15 per cent of cleaned groundnut cake. This will have many advantages :

1. There will be an outright saving of 15 per cent in cereals.
2. The protein content of the *atta* will be practically doubled.
3. There will be no increase in the cost ; if anything it may scale down the cost.
4. The groundnut cake is very rich in vitamin B complex, particularly in vitamin B_1.

There is no danger of the cake powder getting rancid as in the proportion in which it will be present in the

atta, the anti-oxident property of the *atta* will be effective to check any hydrolysis.

Only good fresh seeds should be taken, cleaned by hand-picking and pressed in bullock-driven *ghani* presses. The extraction of oil being by cold process no nutritious ingredients of the groundnut are lost. The oil is pressed out leaving only about 10 to 11 per cent in the cake. The cakes are broken into small pieces and dried in the sun. The cake so treated will remain fresh for at least one week and retain its flavour. They get bone hard and can be cracked to a fine meal in a pestle and mortar. This meal can be fed in the hand *chakki* to pulverize and bring it to *atta* consistency.

The 15 per cent of its addition will mean in the normal diet a daily consumption of less than 1½ *chhataks*. There is no difficulty in making the preparations of the *atta*. It retains all the good points of the whole-cereal *atta* plus a special nutty flavour which makes food all the more tasty. This flavour may be very negligible when only 15 per cent groundnut oilcake *atta* is added and only on a larger addition can the taste be fully appreciated.

The cake contains over 50 per cent high grade protein.

Scientific experiments elsewhere have also established high grade digestibility co-efficient of groundnut protein. It ranks with the microbial protein of yeast and closely approximates animal protein as found in milk, eggs and mutton.

After many experiments we have come to the conclusion that one to two *chhataks* of groundnut oilcake can be easily digested and taken along with cereals making the preparation more palatable. The cake bits are soaked in water and in two hours or so they disintegrate forming a uniform paste. This paste can be mixed with *atta* and made into *chapatis*. The proportion of 1 : 5 is quite good. The paste adds to the flavour of the *dal* or vegetable, if cooked along with these. It is very tasty when used in

the preparation of *dalia* or porridge with cereals half and half or even without that.

Such use of groundnut cake will release some of the cereal needed and will be a very good health-giving food.

Sweet Potatoes: Sweet potatoes are rich in starch and can form a good substitute for cereals. These should be cooked over steam. If cooked with water almost all the water should be allowed to evaporate, for, otherwise much of the mineral salts will get dissolved in the water and would have to be discarded with the water.

Sweet potatoes can be taken mixed with vegetables, milk, curds or in any other convenient form. If at any of the meals, cereals are to be totally substituted by this, a little more of sweet potatoes should be taken on the weight of the usual consumption quantity of cereal.

DEVENDRA KUMAR GUPTA (A. I. V. I. A.)

Harijan, 6-4-1947

72

MILK SWEETS

A correspondent writes:

"You know the position of milk in India. Here at Jamshedpur the population is about two and a half lakhs. Even if two and a half *chhataks* of milk were given to every one, there will be a daily consumption of 1000 maunds. Against this the Tisco dairy is producing 30 maunds of milk per day and we another 3. How much watered milk is supplied by the *gawalas* from door to door we do not know. But we do know that while the babies and expectant mothers and the sick are not getting milk to drink, about 50 maunds of milk is being daily used by the *halwais* for making sweets. Should *rasgullas*, *pendas* and similar luxuries be given preference over feeding bottles?"

Gandhiji has times without number cried himself hoarse over the question. In times like these it is criminal to waste a single morsel of food. Eating sweets is

worse than waste. It harms those who eat them and it deprives others of the necessary foodstuff. It is the responsibility of the public to see that the practice is stopped immediately. All sweets prepared from milk should be banned till there is enough milk for the sick and the children. All conscientious people should take a vow not to touch such sweets themselves and persuade others to do likewise. The most effective sanction is that of public opinion. If the public realize the gravity of the situation and the viciousness of the practice which deprives the babies and the sick of their food, they will rectify it. Without an enlightened public opinion, artificial controls can serve no useful purpose.

Rawalpindi, 31-7-'47 S. N.

Harijan, 17-8-1947

73

GLEANINGS FROM CORRESPONDENTS

The Soya Bean has already been mentioned in these columns. A friend from Bareilly writes :

> "I have grown Soya Beans in my fields in this district. As a *kharif* crop it has proved very successful and some friends who have tasted its different preparations like it much. A friend of mine has been using Soya Bean milk during all these war days of milk scarcity.
>
> "In the coming rainy season it can be grown widely in all fields where rain water does not stand for long. It will be specifically a very suitable crop for sowing in any vacant land attached to bungalows. People in Western U.P. and the Punjab cannot take much rice without detriment to their health. *Bajra* and maize do not suit many persons. Wheat is scarce. Soya Bean may be an useful substitute in some if not many cases."

* * *

Shrimati Lilavati Munshi threw out some useful suggestions to the Bombay Municipal Corporation and the

general public when presiding the other day over the annual general meeting of the Agri-Horticultural Society.

(a) To convert the Malabar Hill Slopes, with the exception of the Hanging Gardens at the top, from the Bombay Garage to Kemp's Corner, into vegetable gardens. This space could easily supply vegetables to a thousand persons,

(b) to use all house terraces with the help of modern methods for small scale cultivation of vegetables like tomatoes and greens.

(c) to convert by chemical means the City's refuse into manure,

(d) to encourage in children the healthy pastime of cultivating fruit plants, vegetables and cereals, both in school and at home, and thus early instil into them a sense of social service.

She rightly says that a vegetable garden, if laid out properly, can be a thing of beauty. The society is willing to give expert advice if needed.

* * *

A correspondent welcomes Gandhiji's suggestion of more raw vegetables and occasional complete or partial fasts. Simple diet plus *yogic* exercises will make many people lose their superfluous fat and improve their digestion. Most of the well-to-do man's maladies are due to wrong diet or overeating, both of which handicaps can easily be overcome by wise restriction in these difficult times.

* * *

Goat's milk can be produced very cheaply. In several large families there is enough food material thrown away daily, like peelings and the coarser parts of vegetables etc. to feed at least one goat.

In a country like ours where pasture lands today are unavailable and a very small percentage of farmers is able to keep milch cattle, it is the milk goat which must become the poor man's cow.

Clean milking and boiling helps to eliminate the odour and flavour objected to by some people in goat's milk.

Uruli, 28-3-'46 A. K.

Harijan, 14-4-1946

74

SCIENTIFIC RESEARCH AND FOOD SHORTAGE

Ever since the P. S. V's visit to Gandhiji at Sevagram in connection with food shortage, his mind has been working to find out ways and means of combating the coming disaster. He has laid the fullest emphasis on " Grow More Food " and " Save As Much Food As Possible " campaigns. In his Ashram all the flower plants have been dug out and vegetables grown there instead. Nobody is to eat a morsel more than necessary, and no food is to be wasted. Over and above these, he has been thinking whether any food substitutes can be found. He asked me one day whether tender shoots of wheat before the grain has formed inside had any nutritive value. The idea is to tide over the period till the next crop is ready. So far as I know tender shoots or ears of wheat before the proper formation of grain has no nutritive value whatsoever. It is for the research institutions in the country to work on the problem and help to ward off the famine. Some of the medical journals have published reports of scientists having succeeded in making grass edible and assimilable by human beings. The Nutrition Research Laboratories at Coonoor can play a great part in this connection. It is sincerely hoped that the authorities of that institution will suspend for the time being academic research and concentrate on finding out ways and means of fighting the food shortage, for instance, finding out alternative foods, working out the role of tubers and root crops—admittedly short term heavy yielding crops, ideally suited to tide over the food crisis. They can also help a good deal by making suggestions for efficient husbanding of the available

food resources in the country. A friend who had good experience of agriculture and *kisans* was telling us the other day that practically 1/8th of the wheat stored by *kisans* goes to waste because of improper storage. That should be remedied without delay, and it is for medical research workers to suggest simple and efficient methods to do so. They can work out austerity meals, suggest menus giving a balanced diet and at the same time economize as much food as possible. The Nutrition Research Laboratories, Coonoor, have rendered useful service in the past by making the intelligentsia of the country food conscious. It is for them now to help the masses. Then and then alone can the heavy annual budget of such research work be justified. The money spent on the research comes from the pockets of the poor and the research workers must see that they do not die of preventable starvation.

S. N.

[The more I study the food crisis the more convinced I feel that people are being starved not for want of food, but for want of the co-operative effort of the expert and a national Government at the Centre bent upon meeting the crisis and inspiring the masses with confidence.

New Delhi, 20-4-'46 M. K. G.]

Harijan, 5-5-19

FAMINE NOTES

Abuse of Food Grains

Now that the expectation of consignment of food grains arriving from America has receded into the background and we are threatened with the breakdown of our rationing system by the third week of June, most stringent measures must at once be taken to prevent a single grain of foodstuffs from being wasted or put to any other use than that of saving human lives threatened by starvation. The use of enormous quantities of foodgrains for the manufacture of dextrine and starches for industrial use, was commented upon in these columns some time back. A friend has now sent detailed note showing that not only one lakh and sixtyone thousand and odd tons of food grains are diverted to this use, but also a considerable proportion is wasted. It could either be greatly reduced or eliminated altogether. He writes :

"At present as far as I could gather, there are 13 starch factories manufacturing starches, dextrines, flour etc. on a large scale all over British India and the States. The raw material used for manufacturing starches and dextrines are maize, wheat, rice, tapioca, potato, barley, etc.

"These starches and dextrines find application in many industries for various processes but I touch upon only three main uses of these on a very huge scale :

1. As "SIZE" OR "SIZING PRODUCT" IN THE TEXTILE TRADE. In order to give sufficient winding and/or weaving strength to fibre and/or fabric, "Sizing" is the process generally employed. As far as I could collect details, the total all India consumption of such sizing products made of starch or dextrine by various textile mills and handloom societies and

factories is estimated to be in the neighbourhood of 1,32,000 tons a year. The percentage of "Sizing" or "Size" depends on the counts of yarn used, the quality of textile material manufactured, the price at which it is marketed and particularly the whims and fancies of the manufacturers. The cheaper varieties of textiles are given very heavy sizing to fetch better prices, the burden of which ultimately falls on the lower class who go in for cheap consumer goods. To manufacture 1,32,000 tons of sizing products, 70,200 tons of starch or dextrine are necessary on a 60 per cent basis every year, which in turn consumes double the raw materials. In other words, yearly 1,40,400 tons of foodstuffs mentioned above are used up in the manufacture of sizing products. Here in India, starch is made of all essenital foodstuffs given above and the starch contents range between 30 to 60 per cent of the raw materials. But for our calculations, I have taken an average of 50 per cent.

2. IN MANUFACTURING GUMS OR PASTES. Though the statistics are not available, the flour of wheat and rice, and tapioca powder used in manufacturing gums, pastes etc. for various purposes including sticking or affixing etc. can be estimated at about 1,500 tons a year from 2000 tons of raw materials (foodstuffs).

3. IN REDUCING THE STRENGTH OF DYESTUFFS. Use of dextrine as a rducing agent in the "Dyes" or "Colours" trade is a well-known fact. As far as I could gather, the consumption of the reducing agent in various provinces is approximately 5,500 tons, Bombay Province leading the list with 2,500 tons. These figures I fear may be on the lower side as I could not get accurate consumption. The necessary data can only be collected by the Government machinery.

"Reducing dyestuffs for the bazar consumers is a common practice with all leading firms like Imperial Chemical Industries, Ciba (India) Ltd., Shaw Wallace,

and Geigy as also many Indian firms. Fine dextrine or starch is used as a reducing agent. Only 30 per cent dextrine can be manufactured of raw materials that is to say, to prepare 5,500 tons of dextrine 19,000 tons of raw material are consumed.

"Thus for all the three purposes a total of 1,61,400 tons of foodstuffs are consumed.

"I have gathered these statistics from the actual consumers of starch and dextrines and my assumption is based on the actual consumption and not on the manufacturers' production. To these must be added another 20 per cent for wastage, the stocking and storing tendencies of the manufacturers and so on. The actual quantity of foodstuffs used for these purposes may thus be about 2,00,000 tons a year."

The correspondent then goes on to describe the wastage due to mismanagement and corrupt practices in mills and factories.

"There is a lot of wastage of these sizing products in textile mills and colour factories, merely because of corruption. The sizing master or the mixer or the manager of the establishment is generally offered a *bakshis* or *illegal gratification* or commission depending on the quantity he orders or recommends. Sometimes and in some places there are chains and the margin of commission is more. In some cases the master or the manager becomes greedy and goes on ordering the quantity always stressing the importance of such products. Enormous quantities are wasted to show huge consumption.

"In some cases textile material costing 6 to 8 annas, by giving a very thick and heavy size, can be sold at 10 to 14 annas to very poor but ignorant consumers. This can be checked or remedied by appointing textile experts to fix the minimum and maximum sizing for a particular kind of textile of a particular count of yarn. I think this will have to be tackled by the National Government.

"So also points 2 and 3 can be controlled by offering suitable substitutes or at least prohibiting the use of all these in colour-reducing by colour importers, mixers and packers. Here again there is corruption on one side and duping the consumers on the other. Colours which may normally cost Rs. 3 to 6 are even sold at a higher if not the same price after reducing the strength by 50 per cent by the addition of dextrine, thus deriving over 100 per cent profit."

This enormous use of huge quantities of grains and roots etc. can either be prohibited forthwith or at least restricted to a very great extent, thus making a considerable quantity available for human consumption. This step, it is suggested, would not in the least affect or paralyze the textile industry or the colour trade as suitable substitute in the form of coffee-dextrine, tamarind-starch, mango-seed-starch, and a score of other forest products can take its place. At present hundreds of tons of tamarind seeds are being exported to foreign countries.

An Unwelcome Intruder

Even more startling are the facts about the spread of tobacco cultivation at the expense of food crops, to which a correspondent from Gujarat has drawn attention. The following is the gist of his letter:

"While on the one hand you are asking people to dig up flower gardens to grow vegetables and food grains and to sink more wells and repair old ones for cultivation, lakhs of acres of land are being used for growing tobacco, which not only has no food value but is positively harmful to health. Thus tube wells and oil engines and quantities of crude oil which could serve to grow more food to alleviate famine are being used for growing tobacco for the black market.

"In 1942 the British Government imposed a tax of as. 9/- per lb. or Rs. 23/- per maund on tobacco and with a view to obtain the maximum revenue from it encouraged the cultivation of tobacco. This has resulted in an enormous increase of the acreage under tobacco.

"In States where tobacco tax was not levied the State authorities offered free land and tobacco seed and engaged the services of tobacco growers from outside by paying salaries to grow tobacco within their territories. Thus nearly 3,000 families of tobacco growers migrated from Gujarat and engaged themselves in tobacco growing in the neighbouring States of Bhavnagar, Junagadh, Morvi, Jamnagar etc. Tobacco growing has also spread to the States of Udaipur, Jodhpur, Khetri, Neemuch, Piplode, Ratlam, Gwalior, Bhopal, Dewas, Indore, Ujjain, and Sirohi in Marwad. In Hyderabad, Sukker and Kherej in Sind, 90,000 *bighas* have been put under tobacco. In the Nizam's territory and Palanpur State a tax on tobacco has been levied and tobacco growing is encouraged for the sake of revenue. In Amraoti, Yeotmal and Khamgaon in C.P., Patidars from Charotar are engaged for tobacco growing. In Mehsana in Baroda State, tobacco yield has increased from 1,000 bags to 7,00,000 bags."

The correspondent ends by suggesting that all tobacco cultivation should be stopped by law while the threat of famine lasts and that in the case of areas assigned to food crops preference should be given to growing oil-seeds and cotton, so that the oilcake and cotton seed might be fed to milch cattle, instead of grain.

A Wail from Guntur

Shri Sitaram Shastry from Guntur writes:

"I discussed the question of tobacco cultivation in the Guntur District with the Deputy Director of Agriculture, Guntur, last month. The Government called for suggestions regarding the stopping of the tobacco crop and utilizing the lands, thus released, for food-crops. Virginia tobacco is grown on about 70,000 acres of land and country tobacco is grown on about the same extent. The total area under tobacco is thus 1,40,000 acres of land. It was calculated that tobacco crop of either variety will yield about Rs. 150/- per acre and

that a food crop will yield about Rs. 80/- per acre. The money crop cultivator has thus an advantage apparently of about Rs. 70/- per acre. It was then proposed that a subsidy of Rs. 70/- per acre should be given to the cultivator of tobacco on the basis of acreage as shown in the cultivation accounts for the current *fasal*

"There are vested interests in tobacco and to minimize the damage caused to them by total prohibition it was also suggested at the time that 50 per cent of area might be converted into foodcrops this year and the other half might be switched over to food crops next year.

"The Director of Agriculture speaking at Bapatla the other day hinted that Government contemplated measures to check tobacco cultivation.

"The extent of 1,40,000 acres above referred to, is exclusive of the extent on which Virginia seedlings are grown; such seedlings are grown on about 1000 acres of land in this district. That extent also will be available for foodcrops.

"It is unnecessary to dilate upon the evil effects of tobacco. It affords neither food nor drink to any man or beast or bird.

"This tobacco is an all India question and concerted action should be taken by all the provinces and states. The matter may be considered by the Working Committee and a definite lead may be given to the whole country."

There can be no question as to the desirability of prohibiting by law the raising of this most exhausting of money crops at a time when dire famine threatens the land. The proposal about paying compensation to tobacco growers, however, is preposterous and can arise only in a capitalistic order that has made money its God. Vested interests can have no claim on famine and starvation. Cultivation like other production should primarily be for use. The invasion of our economy by 'money crops' has become a national menace. In a well ordered society land

will belong only to those who till it and will be worked in answer to the people's needs, not for making money. Agriculture must be freed from the octopus of vested interests which enslaves it today.

Two Valuable Suggestions

Two valuable suggestions have been made for growing more food which are worthy of immediate attention of the Government. An engineer from Quetta writes :

> " If the Government are really in earnest about growing more vegetables, wherever practicable, to supplement the rations that could be made available immediately by human effort in India, I would suggest you to request the Viceroy to persuade the Provincial Governments to order their Public Works Departments to put into commission, for the growth of vegetables, all those pieces of land along the canals called *berms*. A *berm* of a canal is from six to twenty feet in width on either side and is about six inches above the level of water.
>
> " The area of *berms* if put into use will mean thousands of acres of virgin and fertile land needing no extra expenses of making new water courses or regulation of water. The soil of these *berms* keeps always sufficiently moist for the purpose and in practice it has been found very workable. In Sind, at least, on almost all the regular sites (where there is a P.W.D. establishment stationed for the purposes of regulation of water) vegetables are grown by the P.W.D. staff for their own consumption.
>
> " If the facilities of approach to the *berms* are given to certain local farmers of adjoining lands they would gladly employ their spare time usefully in the plantation of vegetables and look after them. The P.W.D. only has to overlook the encroachment of the "foreigners " on their area ; but this should not be objected to considering the immediate good that will accrue to the country at this critical time.

"The provincial governments have also to make necessary arrangements for transport of the vegetables to the railway stations or nearby markets for further disposal. This can be done exactly as was being done during the war period for the supply of vegetables to the army camps. The lease lend lorries given to many contractors could be put into commission at a reasonably fixed rate; (this is one of the conditions of the issue of these lorries to the contractors). The existence of a service road along every canal, its branches and distributaries will be usefully employed by these lorries and no further charges have to be borne for making any new roads etc. Of course the road has to be maintained which also can be easily done through the farmer who would be willing to look after that length of the road which comes in his jurisdiction.

"There is no article of food so quickly grown as vegetables. If the Government could only organize it, it would not be difficult to dehydrate (by sunshine only) most of the vegetables."

Army to the Rescue

The other suggestion is from a British army man. He writes in a letter to Gandhiji:

"It is with concern and regret that I find the Indian people have now to face yet another famine. I have followed this matter in the press and read your published letter of 21st February to Mr. G. E. B. Abell, Private Secretary to the Viceroy.

"The Indian Army should certainly be used as you suggest, and I also think both the British and Indian Army and Air Force should start growing food in cantonments and all other permanent stations and camps. There is ground that can be set aside for this purpose, there is the labour and there is usually a fairly plentiful water supply at such places. The Army in Britain was called upon to do this during th war and the present position in India warrants that similar steps be taken in India now.

"It was with interest that I noted you also suggested the distribution of food should be through co-operative societies or similar organizations. In civilian life I am connected with the Co-operative Movement in Britain, and whilst I have been in India I have been observing the position here. There are, of course, some big differences; one of the most important that you will appreciate being that in Britain the Co-operative Societies are of the people, whereas in India they are mostly Government sponsored. However, from my contacts with the Societies in India I think the retail stores that have been set up mostly during the war have been doing good work in ensuring the people of their supplies of *atta*, sugar, oil cakes etc. at fair prices and I was interested to see some recognition of this in your suggestion."

Delhi, 11-5-'46 PYARELAL

Harijan, 2-6-1946

76

REVEALING FIGURES

The following facts and figures taken from a pamphlet entitled 'Food Crisis, 1946', are of special interest in view of the food shortage:

Production of Foodstuffs in India
(1945-46)

Rice	25.8	million tons
Wheat	8.3	„ „
Gram	3.0	„ „
Millets	7.5	„ „
Maize	2.2	„ „
Barley	1.7	„ „

The above quantity has been found insufficient for the total population of India and the estimated deficit is 6 million tons.

The Punjab, C. P. and Berar, Sind, Orissa and Assam are not exporters of cereals in normal times. The deficit

areas are the N. W. F. P., Bihar, U. P., Madras, Bombay, Bengal, the States of Travancore and Cochin all of which have to import either wheat, rice, millet or all.

The production vs. requirements of foodstuffs annually is as follows :

Foodstuff	Production million tons	Requirement million tons	Deficit million tons
Cereals	50	60	10
Pulses	7	12	5
Vegetables & Fruits	Unassessed	At least double	
Fish	0.6	9	8.4
Milk	22	35	13
Eggs	2660	146000	143340 (No.)

The following is a table of balanced diet for the maintenance of proper health :

Cereals	14 ozs.
Pulses	3 „
Green leafy vegetable	3 „
Root vegetable	3 „
Other vegetables	3 „
Fruits	3 „
Milk	10 „
Sugar and jaggery	2 „
Vegetable oil, ghee etc.	2 „
Fish and meat	3 „
Egg	1 only

This diet yields about 2600 calories.

The adult Indian male requires	2600 calories
Female	2100 „
Child 12 & 13 years	2100 „
„ 10 & 11 „	1800 „
„ 8 & 9 „	1600 „
„ 6 & 7 „	1300 „
„ 4 & 5 „	1000 „
Pregnant woman	2400 „
Nursing mother	3000 „

But how much do they get in comparison with other countries? The figures reveal a sorry tale:

Country	Calaries per head per day
America	3200
Great Britain	2600
Germany (after the war)	1600
Japan (under American occupation)	1575
'Grim and dangerous level' and India	1500 960

No wonder the death rate and infant mortality figures are appalling:

Country	1942 Death rate per 1000	Infant mortality per 1000 births
Australia	10.5	39
Canada	9.7	54
America	10.4	40
Germany	12.7 (1940)	68
England	12.2 (1940)	54
Japan	17.6 (1938)	114 (1937)
India	22.0	163

and our expectation of life woefully short:

Country	Expectation of life at birth	
	Males	Females
Netherlands	65.70	67.20 (1931-40)
New Zealand	65.46	68.45 (1934-38)
Sweden	64.30	66.92 (1936-40)
America	63.65	68.61
Denmark	63.50	65.80 (1936-40)
Union of S A.	61.46	66.80 (1940)
Canada	60.90	64.70 (1940-42)
Ireland	59.00	61.00 (1940-42)
England	60.18	64.40 (1937)
Germany	59.86	62.80 (1932-34)
Italy	53.76	56.00 (1930-32)
Japan	46.92	49.63 (1935-36)
India	26.91	26.56 (1931)

"Place any other country under the same condition, with crippled industries, with agriculture subject to a heavy and uncertain Land Tax and with financial arrangements requiring one half of the revenue to be annually remitted out of the country, and the most prosperous nation on earth will soon know the horrors of famine," said R. C. Dutt years ago.

Too long has India groaned under the cruel foreign yoke. Mr. Winston Churchill and those of his ilk who talk pious platitudes about their concern for the minorities of India, should read these figures and pause before they dare to play the role of hypocrites. Not until our people are able to get enough to eat, can all our schemes for proper housing or roads or even education and health be of any real avail. Adequate and proper diet is the first requirement of man and to this end the energy of all Provincial Governments must be diverted forthwith if we are to live.

Poona, 1-8-'46 A. K.

Harijan, 8-9-1946

B. AGRICULTURE

77

OVER-POPULATION OR UNDER-PRODUCTION?

It has become a fashion these days to ascribe the recurring famines in India to over-population. That theory has been challenged more than once and seems to have an escapist odour about it. Chapter and verse can be cited to show that India's undeveloped potential of food production is more than adequate to feed her growing population for a good while yet to come. A correspondent points attention to the following facts about our agriculture in this connection:

1. It has been demonstrated by experiments in Government Agricultural Farms that by sowing improved seeds, 29 per cent increase can be affected on the existing yield.

2. If the export of oil-seed, oil-cake, bones etc. were stopped and the animal droppings saved for the soil as manure by providing the villagers with wood fuel instead of cowdung for domestic cooking etc., the existing crop output could be doubled.

3. By further development of canal irrigation and by building sufficient tanks and wells, two crops could be grown where at present, there is only one. Out of 245 crore acres in India, at present only 32 crores are under double crop.

4. A comparison of yield per acre in India and other countries respectively points to the same thing.

Here are the figures for rice per acre:

Egypt	3447 lbs.
Japan	3909 „
Italy	4810 „
Formosa	2407 „
India	939 „

The figures for wheat are :

Japan	2010 lb.
Italy	1374 ,,
Canada	1197 ,,
England	2085 ,,
India	774 ,,

5. Government statements further indicate that owing to lack of proper storage facilities, the annual loss of food grains due to the inroads of rats, insect pests etc comes to about 10 lakhs of tons per year.

6. The extent of cultivable land which is at present not under cultivation is 9 crore acres.

7. Lastly comes the invasion of 'money crops'. In 1900 the area under commercial crops was 165 lakh acres. In 1930 the figures rose to 240 lakh acres. During this period the land under oil-seeds increased from 130 lakhs acres to 160 lakh acres. In 1942, 32 per cent of the entire yield of oil-seeds and jute was for export, of linseed 71 per cent and of groundnuts 15 per cent. In other words, so much soil fertility was bartered away for commercial gain, without the possibility of returning in any shape or form to the soil what was taken out of the soil, thus impairing it permanently. This is not agriculture but downright robbery of the soil at the cost of posterity. If our agriculture could be rescued from the invasion of 'money crops' it would go a long way towards meeting the recurring threat of food shortage.

New Delhi, 7-9-'46 PYARELAL

Harijan, 22-9-1946

THREE Fs

Foodgrains, fats and fuel are the triple support of life in the villages. There is at present a scarcity in respect of all the three. A friend sends the following suggestions to meet the triple scarcity. Although meant primarily for the Punjab, they are equally applicable to other parts of India where similar conditions prevail:

1. A lot of land on the banks of rivers and *nullahs* is at present overrun by rushes and reeds only. If it could be cleared up with the help of the military, it could be used for growing wheat, barley, gram and *musoor*. The soil is extremely fertile and would yield bumper crops, besides providing straw in plenty for the cattle.

2. Similarly, there is a lot of uncultivated land along the railway lines and roads. If the military department could either itself undertake it or make available for irrigation the equipment or heavy-oil burning vehicles that can be adapted to this use, all this waste land could immediately be reclaimed and brought under cultivation.

3. There are lots of dry areas in the Punjab which are at present under scrub. With a little labour the scrub can be cleared and castor oil grown in its place. It is a very hardy plant and can subsist mostly by drawing moisture from the air. Castor oil is the base *par excellence* for the manufacture of soap and will serve to relieve the consumption of mustard, gingelli, groundnut and other edible oils which are at present being used in soap manufacture.

4. Owing to scarcity of wood, fuel, cattle dung and other farm-yard manure in the villages are used for burning, resulting in the progressive impoverishment of the soil. A systematic effort should therefore be made to have reserves of trees planted along roads and on canal banks to provide fuel and timber for building.

His other suggestions include brick and cement lining for canals to reclaim thousands of acres of land that have become decadent owing to water logging and excessive salinity resulting from seepage, also checking the evil of excessive fragmentation of land which is strangulating cultivation in many parts on the one hand and consolidation of uneconomical holdings, power irrigation and so on.

Sodepur, 30-10-'46 Pyarelal

Harijan, 17-11-1946

79

WANTED CORN, NOT CURRENCY

Businessmen say that agriculture is not a profitable avocation in India. But, since life depends upon agriculture, where agriculture is not profitable, life itself cannot be profitable. This result is not, cannot be, natural; it is the result of an artificial civilization. Currency is the symbol of this artificiality. The false prestige given to the possession of currency has become the cause of the destruction of so much life.

The people of India live in *khedas*—fields (remember that one of the synonyms for 'village' in several Indian languages is *kheda*, which also means a field). If we can undo in the *khedas* the false importance given to currency, agriculture cannot but improve. The importance given to the possession of currency is the cause of the frenzy for raising 'money-crops'. Why are so much tobacco, a considerable part of cotton and similar other crops raised? Why should there be so much need for currency? Because, the villager has to obtain all his wants by purchase. He must bring his cloth and the oil-cake and several other necessaries from the market; hence his need for money. Hence he raises crops not needed by him or his comrades in the village, but those wanted by a far away exporter or industrialist. And so, food is scarce. The village itself has no industries of its own. The villager cannot supply himself with his essential

needs from things manufactured locally. The deduction is clear. Sufficient food is not grown in the fields because sufficient industry is not carried on in the villages.

Of course, our agriculture needs considerable improvement; and there is no gainsaying the fact that improved agriculture will be more profitable. It will need all our talents, energy and years of patient endeavour to do this. While all this must be done, it must also be realized that the population will also increase along with the years of effort and the results of improved agriculture alone may not be proportionate to the needs of an enlarged population. Therefore an agriculturist should not be defined merely as one who lives by tilling land, but one who both tills the land and produces from the raw produce of his land articles needed for his own use. This idea is at the root of the Khadi and Village Industries movement. In the immediate future, the miseries of the poor will not end without a simultaneous impetus to Khadi and Village Industries.

Government is busily engaged in making calculations of the deficiency in the quantity of food needed for the country and devising ways and means of meeting it. But, if you think hard, you would realize that the 'Grow More Food' movement must not be limited by calculations of deficiency. Indeed, there should be no limit to the amount of food to be grown. It must not simply meet the annual needs of the country, but there must be plenty of surplus left for the next year. Like air and water, there must be plenty of food too. And food should not mean merely various corns, but also vegetables, fruits, roots and tubers. Nor should they be raised with an eye on their price in money; they must be consumed by the producer himself. He himself must become the principal buyer of his produce; the unneeded surplus alone should be for sale. This is Swaraj. "I salute the eater of his own produce," said Tukaram. No one would desire to put up his own son for sale in the market! He can never feel that he got full value for him. Hence, he cannot afford it. But he produces milk and butter, fruits and

vegetables, and puts them up for sale! He says that he cannot afford to consume them himself! Why should it be so? My answer is — for want of village industries. Possibly some people may feel that I am obsessed by this idea. But as long as I have not been given any other explanation for it, I must adhere to this view.

Pavnar, 13-1-'47 VINOBA

(Translated from the original in Marathi)

Harijan, 16-2-1947

80

THE FOOD SITUATION

At the last conference of Food Officials at Delhi it was stated that the next rice crop will yield only about 83 per cent. The shortage is therefore considerable, though the situation may be ameliorated in some parts of the country where the rains are good. In any case, the food situation in the country is one which requires careful attention. India is importing thousands of tons of food from abroad. This is a reflection on an agricultural country. No country that aims at being independent can attain that position as long as that country is dependent on other countries for its primary necessities. We have, therefore, to put forth our best efforts to make India self-sufficient in food.

One of the striking features of the British landscape today is the appearance of vegetable patches wherever land can be utilized for that purpose. In addition to this they are hoping to bring in hundreds of thousands of acreage under fresh cultivation. Cannot the Ministry of Food in our country follow this good example and ban money crops for industrial purposes and give priority for food crops to such lands as are under industrial exploitation today? This can be done if there is a will to feed the population by its own effort. It may require controlling of the use of land and may lead even to licensing of land for particular crops.

Farmers desiring to raise industrial crops may be required to take out licences paying adequate fees, and by this method it may be possible to regulate the use of land in the interests of the nation rather than in the interests of the bank accounts of a few persons. This would entail the close co-operation of effort between the Ministries of Food and Industries. We trust such co-operation in the interests of the health of the nation will be forthcoming.

J. C. KUMARAPPA

Harijan, 12-10-1947

81

A RIGHT STEP AT LAST

At least one Provincial Government — Madras — seems to have awakened at last to the importance of encouraging foodcrops and increasing the acreage under them as a practical measure of meeting the food shortage in the country. The Government promises facilities in the way of supply of seeds and manures.

In order to prevent any increase in the acreage under commercial crops the Government will not supply manures and fertilizers to such crops.

Again, if any ryots divert their lands under paddy to crops like tobacco, cotton, groundnut, sugarcane etc., they will be disqualified for any assistance or facilities from the Government.

Though these are but halting steps, we welcome them as being in the right direction. May we hope that this is just the glimmer of the approaching dawn to an agricultural country based on self-sufficiency ?

J. C. K.

Harijan, 21-12-1947

FOR THE ATTENTION OF GOVERNMENT

A correspondent from Chittoor writes to Gandhiji in a letter:

"The rate of interest charged by the Government on loans granted to the agriculturists under the Land Improvements Loans Act and the Agricultural Improvements Loans Act is at present 5½ per cent whereas the Government is able to get money in the open market from 2 to 2¾ per cent of interest. This is a central subject. The Government of India can give all necessary loans free of interest or at least at 2½ per cent of interest."

Mussooree, 7-6-'46

Fallow and Cultivable Lands

Shri V. N. Khanolkar from Bombay writes:

"British India agricultural statistics 1941-42, published by the Government of India (1945) gives sufficient food for thought to our Ministers who are trying their best to resolve the acute food problem.

"The position as it stands today is not likely to have undergone a big change on account of the Grow More Food campaign and the figures quoted below may be taken as sufficiently representing the present state of affairs in the country.

"The total area left fallow during the year is 4,71,50,000 acres, while the net area actually sown is 21,32,90,000 acres. The percentage of the fallow area to the net area sown in British India is 22 per cent while the corresponding percentage for the various provinces are:

Ajmer Merwara	65%	Delhi	9%
Assam	30%	Madras	31%
Bengal	18%	N. W. F. P.	19%
Bihar	38%	Orissa	30%
Bombay	17%	Punjab	11%
C. P. & Berar	14%	Sind	111%
Coorg	100%	United Provinces	8%

"Experts opine that given manure and water in sufficient quantities, there is no necessity of lands being kept fallow. The figures of the United Provinces prove this.

"We also find the following interesting figures in the column 'cultivable area'".

Bengal	8,62,788	acres
Bombay	2,07,301	,,
C. P. & Berar	51,94,728	,,
Punjab	42,32,286	,,
Total	1,04,97,103	acres

"Sir Vijayaraghavacharya in *Law and its problems* says:

'The balance of 87 million acres is classed in the official statistics as 'uncultivated area'. This area is what is usually referred to in discussions about food supplies and agricultural colonization as land available for expansion of agriculture. No systematic investigation has been made into the nature of this area with a view to ascertain how much of it could be cultivated with a reasonable capital expenditure. Calculations made by Provincial Governments have indicated that 10 million acres of this area are definitely known to be cultivable.' (page 4)

"Besides the above the following items in the report will make interesting reading:

1.	area under jute and other fibres	29,52,000	acres
2.	,, tea and coffee	8,41,000	,,
3.	tobacco	11,96,000	,,
4.	opium	18,000	,,
5.	other narcotic drugs	1,94,000	,,
	Total	52,01,000	acres

"A big portion of the jute is exported to foreign lands. The owners of tea estates have kept, as reserves, thousands of acres of good land for future expansion. In view of the acute food shortage land under 3, 4 and 5 should be converted into food crops land."

Here is a thing for the popular ministries to take up at once. They need not wait for the establishment of a national government at the Centre.

New Delhi, 15-6-'46 PYARELAL

Harijan, 23-6-1946

83

RYOTS OR TENANTS

Many of the popular ministries have been attempting to regulate the relationship of the zamindar and the cultivator. Generally speaking, the zamindars are merely rentiers or absentee landlords. They have no immediate contact with the land, neither do they concern themselves with the actual cultivation of crops. The methods suggested to habilitate the cultivating farmer on his own land has often taken the form of either the Government buying the land, compensating the zamindar and giving it to the cultivating ryot, or confiscation to the State of large estates and splitting them up into small private holdings.

It seems to us that it is not necessary in the first instance to confiscate the land nor would it seem essential to compensate the zamindar. The course which should be adopted would seem to be to place the cultivable lands in the villages to whomsoever they may belong under a system of balanced cultivation by which the requirements of the village for a balanced diet and other primary necessities will be produced in the required quantities. Under this scheme the land will be licensed for growing the products that are necessary to ensure the needs of a group of villages with a population of about 50,000. Such lands when licensed should be cultivated by the actual owner. If any of the lands so licensed remain uncultivated for a period of 2 to 3 years without adequate reason, such lands should revert to the State and the State can then redistribute those lands amongst the villagers who are willing to utilize the land to produce commodities according to plan for balanced cultivation.

This method would ensure that no land lies idle and at the same time it would also, in the course of a few years, bring back the holdings from absentee landlords to the cultivating peasants, and ensure that commodities are forthcoming to meet the needs of the people, and that land is not allowed to lie uncultivated merely because of absentee landlordism.

Legislation in regard to this might not meet with much opposition as attempts to confiscate lands might. The latter savours of violence, while the former is *ahimsak*. We commend this suggestion to those provinces which are seriously thinking of meeting the shortage in commodities by increased production.

J. C. KUMARAPPA

Harijan, 11-5-1947

84

HOW TO GROW MORE FOOD

I

Sometimes things don't get taken up, just because they are so simple. "Grow More Food" is one such thing. It is not the process of growing more food which is the unsurmountable hurdle, but the job of getting people's minds and hearts drawn to the matter.

Has not Gandhiji told us time after time that it is possible for us to make up India's food deficit by our own efforts within the country, and that it is wrong for us to look to other countries for help? We ought to be ashamed to be sitting in this listless manner, making no personal effort, and consoling ourselves with the news which keep coming in the papers, of grain ships reaching us from abroad. These grain ships do not come here and deposit grain for nothing! Crores of rupees out of India's hard-squeezed budget have to go out of the country for this. And we sit watching! Is this the way to build up our new-born liberty?

We must pull ourselves together, and stop sliding down this slope of degeneration. Everyone can help, from the private individual to the huge Government machine :

1. The people who have not got even an inch of land, can collect together old broken pots, pans and boxes, put a little earth in them, and raise salads and vegetables.

2. The owners of bungalows and houses can supply the city and town markets throughout India with green vegetables, roots, potatoes, pumpkins, marrows and the like, at reasonable rates.

3. The municipalities can augment this supply (adding grain crops where the land is sufficient) through the cultivation of public gardens, parks etc.

4. The Governments can aid the villagers far more effectively than they are doing at present, in the better development of already cultivated land.

These are no new suggestions, but except in a few rare cases, they have been quietly slept over, while the country has been passing through an ever worsening food crisis !

We suffer deplorably from big schemes and little field-work, big talk and little action. What I have suggested above needs no big outlay in money or equipment. It needs *active human interest.* No schemes, however heavily financed, will succeed without this vital force, and any scheme, even if devoid of financial aid, will do wonders if that force is present.

Just see how simple it will be if that *active human interest* is awakened.

1. The landless folks will be producing and eating, within a few days, crisp, health-giving mustard salads, and within a few weeks their verandahs and roofs will be edged and festooned with attractive vegetable bearing plants and creepers.

2. The owners of bungalows will discuss matters with their *malis*, and the local Agriculture Department Officers. They will then supply their *malis* with the necessary seeds and manures, and will themselves give

their spare time to working in their gardens. (Better health owing to the fresh air and exercise gained in the garden will be a pleasant by-product.) The money spent on seeds and manures will be far more than covered by the value of the garden produce.

3. The municipalities will turn their *malis'* activities from flower and lawn-grass cultivation to food production, and they will draw from the city public squads of volunteer workers who will take their air and exercise by working on the land in these municipal grounds. It will become the pride of the city folk to lend a voluntary hand in the cultivation of their city's soil. Here again the produce will more than repay the cost. Labour is what puts up the price of production, and labour does not have to be counted in this situation. The *malis* are already there, spending their time on work which brings in no returns, and the rest of the labour will be voluntary.

4. The Government assistance to the villagers is a much bigger job, but without any increased finances great strides can be made when once that vital force, the *active human interest* is awakened in the Government departmental staff. From the Secretaries of Departments, sitting in the Secretariates down to the smallest officials in the field-work, they have the wrong outlook, and the wrong approach. The vast Government machinery is such, that, if a good man gets into it, he has either to deteriorate or get out. The big officers are paid too much, and the petty officials are paid too little, and all have to maintain an artificial standard of living and dress. Lazy indifference nurtured by red-tapism, inefficiency, corruption, and lack of living contact with the masses, are characteristics which the Government machine inevitably develops in its employees. So the pre-requisite for any successful "Grow More Food" scheme, through Government, is cleansed and completely reorientated Government machinery. It is not a case of Government spending more money, but of the Development Departments

spending the money already at their disposal, in the right way, without the delays, and wastes and wrong approaches at present prevailing. The drawing up of development schemes which is at present going on at the Centre and in the Provinces, is putting the cart before the horse. The first scheme, which has to be thought out and put into action, is the creation of administrative machinery which will be able successfully to implement the Development schemes. Everywhere in the Government circles I find the admission that the machine is bad, but because of the nature of the problem, everyone tries to evade the fact that revolutionary changes need to be carried out. To talk of big schemes without openly facing up to this fact, is to hoodwink the public.

Therefore, I say, to develop the food-growing resources of the country through Government agency, we must at once and completely readjust the administrative machinery. Through that achievement all else will grow and flourish, with less cost and increased production.

New Delhi, 23-10-'47 MIRABEHN

Harijan, 2-11-1947

85

HOW TO GROW MORE FOOD

II

For those who have taken interest in what I wrote last week, I am giving this week, a few practical hints and suggestions. The season is advanced and no time should be lost, so those of you who mean business should already be digging the soil. I address first the private individuals. After the soil has been dug (once, if cultivated soil, twice — once each way — if new ground) the clods of earth should not be broken up and smoothed out. The soil should be left just as it is, all lumpy, so that the sun and the air can penetrate under the surface. In

this state it should be left for about a week. If it were not for the short time at our disposal, the soil could be left open with advantage for 3 or 4 weeks. In the meantime if any well-rotted manure is available, this should be collected and reduced to a fine texture. At the end of the week the manure should be scattered evenly on the dug soil, which will then be broken up, well mixed with the manure and smoothed out. After that, give it a good watering and leave it until it is only slightly damp, with no stickyness about it. Now you can prepare the beds for sowing. A good size for each bed would be about 5' x 6'. This can be varied to suit circumstances. There should be a little bank all round the bed about 5" broad and about 4" high. According to the space available you will have one bed after another, and if you have a pump or tap, or other convenience for irrigation, you will make a small water channel running along the side of the beds at a slightly higher level, so that when you make an opening in the bank of a bed, and block up the water channel immediately beyond, the water will flow naturally into the vegetable plot.

This week we will consider the sownig of four excellent winter vegetables viz. 1. Carrots (*gajar*), 2. Turnips (*saljam*), 3. Radish (*mulı*) and 4. Spinach (*palak*).

1. Carrots: Prepare the bed as mentioned above. Mix up and smooth out the surface of the earth, then sow the carrot seeds broadcast. Take care to scatter them as evenly as possible. Not very thick, but at the same time no bare spaces. After sowing, the earth should be very lightly raked, or brushed with a hard brush made of twigs. The plot may then be watered very lightly with a fine watering pot. The irrigation channels should not be used until the seeds have sprouted and taken firm root in the soil, otherwise you will get a dense mass of growth at the lower end of the plot, and a desert at the upper end where the water enters. In the early stage the soil should be lightly watered from time to time so as to keep it slightly damp. When the plants grow big they may be more

heavily watered at longer intervals. When the little carrots come up, if they are very dense in any part of the plot, they may be thinned out, otherwise their roots will not have space to swell and grow freely.

2. Turnips: The beds can be prepared the same as for carrots, but instead of sowing broadcast, the seeds should be lightly placed about ¼ of an inch below the ground and covered over (the soil should not be pressed down) at an all round distance of about 5" from one another. Watering will be the same as for carrots. Here, of course, no thinning will be required.

3. Radishes: These should be sown in the same way as turnips. But they are best sown on ridges, the banks around the edges of the plots in which the other vegetables are grown can, therefore, be utilized. Take care to water the ridges also with the watering pot, and when the watering is done by flooding, the water should be sufficient to soak the banks properly.

4. Spinach: This should be sown broadcast like carrots. The sowing should be as even as possible and closer than carrots. No thinning need be done. It should be kept well watered, and three to four cuttings may be obtained from the same crop.

All this should not alarm you, as being difficult. On the contrary, it is most fascinating. Much more fascinating and health-giving than sitting in an office or working in a factory! How much richer life becomes when we associate with Nature! If we will but approach her with a loving heart, we find her ever ready to respond. So much so, that even with half an inch of earth in an old *thali* she will give us salads in a few days!

I will explain this in more detail.

Take any broad, shallow vessel — a *thali* or tray — and spread in it half an inch of finely powdered soil. Then flood it with water, and shake the vessel gently so that the watery earth settles down perfectly level. Immediately sow in it *sarson* or *rai* (mustards), so thickly that seeds are practically touching one another, but not overlapping. Keep the vessel in a temperate

place where the soil will not dry quickly, at the same time where the warmth will be enough to germinate the seeds. The soil should never be allowed to dry up. When the dampness begins to go out of it, water should be given very gently so as not to disturb the seeds in the soil. No flooding now, only a little soft sprinkling with the hand, often enough to keep the earth slightly damp. The mustard seeds should germinate within two or three days, and within 10 days the growth should be 1 to 1½ inches high, and ready for cutting. The pace of growth varies with the season of the year. The vessel should be kept indoors in a shady place, but may be put out in the sun for half an hour or so once a day, as this strengthens the colour of the leaves. Always feel the soil after bringing it in from the sun to make sure that it is still damp.

There is another plant called cress, which can be treated in the same way, but, whereas mustard seed can be obtained everywhere, cress is available only at big horticultural seed merchants. Those of you who can, should certainly obtain it. Sow the two in separate vessels, and when cutting, take a little from both and mix them together as a salad.

You may say, "What is the good of taking all this trouble just for a little salad? What nourishment is there in this?" Well, food is not only a matter of bulk. It has to be balanced. A little salad, added to a meal of *roti* and *dal*, helps much to give it that balance. It strengthens the digestion and enables the system to extract more nourishment out of the wheat and pulse. A man who eats four *rotis* would get more nourishment and better health out of his meal if he ate three *rotis* along with a little raw salad or cooked green vegetables. Hence, the cultivation of salads and vegetables, even in *thalis* and pots or boxes, means a very real addition to the nourishment at our disposal.

To the Municipalities I would say:

Have you yet called meetings and discussed what grounds to cultivate? The decision should not be de-

and finally leaves four feet open at the opposite end. While carrying out this operation we will take care thoroughly to mix up the layers and break up any solid lumps. We will then pour plenty of water on it, cover it up again with earth, and leave it for another 7 or 8 weeks. When we open it up at the end of this time we shall find good, well-mixed and rotted manure. This is given the special name of Compost. There are various methods. Most of them are rather complicated. The method I have described is the method I employ in the Kisan Ashram. It is quite simple work and, therefore, possible for all of us to do. I have given it the name of Kisan Compost.

You can see from the above description that Kisan Compost needs turning only once, and takes not more than 3 to 4 months to ripen. The breadth and length of the pits can be increased if necessary. The rotting process is hastened if a sprinkling of old compost is added at the time of spreading the fresh layers. Ash, finely sprinkled, is also helpful. Thick or hard matter like *bajri* stalks, sugar-cane refuse, etc. should not be put straight into the compost. It should either be soaked in water until rotted, or burnt to ash. If the compost in the pits is ready before it is needed in the fields, it can be removed from the pits, piled in a long heap on the ground, and then covered over with 2 or 3 inches of earth. If necessary, it can be lightly plastered to keep out sun and air.

If we will take the trouble to collect all the available cattle-dung and rubbish, and treat it as I have described, we shall be able to nourish our poor famished Mother Earth, and she in return will nourish us and our starving cattle with bumper crops."

(This Kisan Compost can be prepared on a smaller scale in private gardens. Good sizes for pits would be :

1. 14 ft. long, 7 ft. broad, 3 ft. deep.
2. 10 ft. long, 5 ft. broad, 3 ft. deep.
3. 8 ft. long, 4 ft. broad, 2½ ft. deep.

If dung is not available on the premises, a small amount of cow-dung may perhaps be available from outside — from some *goshala* or grazing ground. To make this go as far as possible it should be mixed with water in a bucket and then sprinkled over the rubbish.)

The Agricultural Departments in each province can also help private individuals, anxious to grow vegetables, by immediately publishing small pamphlets giving lists of suitable vegetable seeds for each season along with directions regarding sowing and cultivation. At the same time their local Departmental Staff should offer advice and guidance to the city and town public, and distribute free seeds, in the first instance, on the understanding that people will save seed for themselves from their own gardens. Something of this sort has been attempted here and there, but there has been no concerted and concentrated effort such as is needed in the present crisis.

New Delhi, 3-11-'47

Harijan, 23-11-1947

86

HOW TO GROW MORE FOOD

III

By the time this reaches you — I address individual growers — your vegetable seeds will be in the ground, and you will be looking anxiously each day, for some sign of their sprouting. It is so tempting just to scrape away the earth and see what is going on underneath, but resist the temptation; it spoils the little seeds. Keep patient for at least ten to fifteen days. After that, if nothing has come up to the surface, examine carefully in one place. If you find the seeds lying in the soil ungerminated, the plot may be dug up and resown. Causes for failure may be bad seed, or badly prepared soil, or again under- or over-watering. As I explained last week the soil should never be allowed to get bone-dry, nor should it be kept sodden.

Another possible reason might be the situation. Vegetable plots should not be right alongside a hedge or surrounded by thick bushes. The strong roots of these woody shrubs draw away the nourishment from the soil. Under big shady trees is, of course, also bad, except for a few special types of vegetables.

When the seeds first sprout they will put forth two little succulent roundish leaves (cotyledons) — their "milk teeth". After some time two more leaves will appear between these baby ones, which will now gradually dry up and drop off. The new leaves will bear the shape and style of the plant to come. *Palak* and carrots are such: they put up first, two tiny long-shaped baby leaves. I may mention here, that the mustard salad to be grown in a *thali* which I described last week, is cut during the "milk teeth" stage, and that is why it is so succulent and crisp to eat.

When your vegetables have grown up a little bit, and become well-rooted in the soil, you must look to the weeding of the plots. All grass and other weeds which may make their appearance, must be pulled out by the roots. Do not weed just after watering, when the ground is wet, otherwise much soil will come up with the weeds, and this will disturb the roots of the young vegetables. Whatever thinning has to be done should be carried out at this time.

The next stage will be when the plants are getting well grown. The soil should now be lightly dug and loosened, with a *khurpi* all around the plants. Great care should be taken not to cut or disturb their roots. This job should be done between two waterings. That is to say, the soil should not be wet, and after it has been loosened it should be left for a day or two to let the sun and air penetrate the earth, before the next watering.

If you have sufficient space, you can have one more sowing each of carrots, turnips and spinach. This will give you a prolonged supply. Radish (*muli*) you can go on sowing in small quantities every ten days till the end of January.

I hope those of you who have room in your gardens, have made compost pits, and started filling them. Remember, that everything that is put into a compost pit must be scattered freely. No lumps or heaps must be allowed. This means fighting against the easy, lazy habit of throwing things lump into the pit, and leaving them there all in a heap. Taking just a little trouble makes all the difference.

In the next article I will close the series with a comprehensive list of useful vegetables for all seasons.

New Delhi, 8-11-'47 MIRABEHN

Harijan, 23-11-1947

87

HOW TO GROW MORE FOOD

IV

Are your little seedlings coming up well — are those of you, with no land, growing mustard and cress salads, and improving your health by eating them? These thoughts pass through my mind. And this big question is also always there: *How many of you are really doing the thing* ? May God inspire you with energy and faith.

Here is the promised list of vegetables. As it takes up a lot of space, the hot weather list will be carried over into the next issues of the *Harijan*.

New Delhi, 15-11-'47

[Mirabehn's is an apposite question. It will be interesting to know how many are profiting by her hints. Will such please send their names to the editor of the *Harijan*, Ahmedabad?

New Delhi, 17-11-'47 M. K .G.]

GROWING OF COLD WEATHER VEGETABLES

Name of vegetable	Seed rate per acre	Time of sowing (P. Plains H. Hills)	Depth of sowing	Period of germination	Distance apart after sowing, thinning, or transplanting		Period of availability of vegetable in plains
					Rows	Plants	
Beans (Lobia)	60 lb.	P. mid-Oct. to mid-Nov. H. March to end May.	3"	20 days	2'	1 5'	Feb to March.

Remarks: Seed sown in trenches 2 ft. wide, 3 ins. deep and 5 ft. apart. In each trench plant two rows 1 ft. apart. Seed is sown 3 ins. deep and 5 ins. to 6 ins. apart Flood the channel to obtain good germination. When the plants are 15 ins. high, fill the trenches. Pinch off growing points when plants are in flower.

Beans (French)		P. Mid-Aug. to mid-Oct. H. April to mid-June.	1. 5"	12 days	1.5'	1. 5'	Feb. to March.
(a) Tall 20 lb. (b) Dwarf 40 lb. (Frans-bean)							

Remarks: Thrives better at hill-stations than in the plains. The situation selected in the plains should be sheltered by arboreal growth. Seed is sown on ridges or flat in rows 1.5 ft. apart.

Beet-root (*Chukandar*)	4-6 lb.	P. Aug. to end Oct. H. March to end May,	.25"	12 days	15"	4"-6"	Nov, to March.

Remarks: The seed is sown thickly in rows 15 ins. apart. Seedlings are thinned out to 4 ins. to 6 ins. apart. The seed requires continuous supply of moisture for germination.

Brussels' Sprouts.	12 oz.	P. Sept to end Oct H March to mid-May.	1/8"	6 days	3' 1 5'	Feb.

Remarks: Seed is sown broadcast in raised beds made in the open. Seedlings are transplanted when 4 ins. to 5 ins. high.

Cabbage (*Bund-gobhi*)	8 oz.	P. mid-Aug. to end Oct. H. March to end July.	1/8"	6 days	2.5' 2 5'	Jan. to March

Remarks: Manure the field @ 20 tons of well-rotted farmyard manure and apply ammonium sulphate @ 2 Mds. per acre as top dressing. Raise seedlings as in case of Brussels Sprouts. Transplant when 4 to 5 inches high.

Carrot (*Gajar*)	6-8 lb	P. mid-Aug. to end Nov H March to May.	.5"	15-20 days.	1 5' 2"-3"	Dec. to March

Remarks: Acclimatized varieties can be sown early in autumn and imported varieties sown late. Use 10 tons of well-rotted farmyard manure per acre. The percentage of germination of carrot seed being low, it should be sown thickly. Transplant when 4 to 5 inches high.

Cauliflower (*Phool gobi*)	8 oz.	P. mid-June to end Oct. H. March to end April.	5"	7 days.	2.5' 1,5'	Oct. to March.

Remarks: Sow seed of early varieties from mid-June to end of August. The late variety (Snow Ball) is sown in October. Seed beds should be shaded during the hottest part of the day. Transplant when 4 to 5 inches high.

Coriander (*Dhaniya*)	20 lb.	P. Sept. to Nov. H. March to end May.	.5"	10 days.	1' 1'	Seed in June. Leaves all the year.

Remarks: Break the fruit well by rubbing before sowing. For seed purposes thinning is necessary. For leaves it can be grown throughout the year.

Egg-plant (*Bengan*)	8-10 oz.	P. 1. end Feb. 2. June 3. end Oct.	1/8"	6 days	2.5'	1.5'	March to Dec.

Remarks: Seed is sown broadcast in nursery, using 1.5 to 2 oz. seed per marla. The seedlings of 1st and 2nd sowings are usually attacked by *Hadda* beetles, the grubs and eggs of which should be hand-picked. Protect seedlings of 3rd sowing from frost and transplant when the danger of frost is over. Third crop is most popular.

Garlic (*Lahsan*)	6-7 mds. of bulbs	P. Oct. H. Feb. to March	.5"	7-12 days	1'	3"-4"	May onwards.

Remarks: When the tops of leaves begin to turn yellow in the beginning of May, the plants are pulled out, dried and stored for future use.

Lettuce (*Salad*)	1.5 lb.	P. Oct. to Nov. H. Mar. to mid-June.	1/8"	6-8 days	15"	12"	Jan. to Feb.

Remarks: If the seed is to be sown direct in the field, it should be sown on both sides of raised beds about 2 ft. wide, with furrows in between for irrigation. Furrows must be 18 ins. wide and 9 ins. deep. Irrigate immediately after sowing. Water must reach the seeds only by seepage.

Knol-Khol (*Phool gobi*)	1 lb.	P. mid-Aug. to end Oct. H. Feb. to end May.	.5"	4-6 days	1.5'	9"	Dec. to March.

Remarks: Harvest when the turnip-like stem is about 2 ins. to 3 ins. in diameter.

Onion (*Piyaz*)	7-9 lb.	P. mid-Oct. to mid-Nov. H. Mar. to end May.	5"	15-20 days	12"	3"-4"	May onwards.

Remarks: Irrigate the seed-bed till the plants are well established. Irrigate immediately after transplanting and then after 12 to 15 days, till the tops begin to fall over. Dig out the bulbs when the leaves turn yellow. Cut off the tops and spread the bulbs over the floor.

Peas (*Matar*)	40 lb.	P. Oct. to mid-Nov. H. Mar. to end May	1"	7 days	3'-4' wide raised beds.	2"	Feb. and March.

Remarks: Frost does not affect the plants, but it kills flowers and pods. The width of the raised seed-beds varies from 3-5 ft. depending upon the growth character of the variety. Irrigation is given immediately after sowing. When the seedlings are 5 ins. to 6 ins. tall, a single row of stakes in the middle of each bed is provided.

Potato (*Aloo*)	8-12 Mds.	P. mid-Sept. to mid-Dec. H. mid-Feb. to mid-April	3"	7-10 days	2.5'	9"-12"	Dec. to March.

Remarks: Fresh tubers require two months rest period before they can be sown. Plants are earthed up before tuber formation starts. For canal irrigation tubers are planted on 6 ins. to 9 ins. high ridges and for well irrigation on 4 ins. to 5 ins. high ridges. Irrigate immediately after planting to avoid rotting of tubers. While irrigating the ridges must not be submerged. 8 to 10 irrigations are required to mature the crop.

Radish (*Mooli*)	3-4 lb.	P. mid-Aug. to end Jan. H. March to end Aug.	1"	3-6 days	15"	2"-4"	Sept. to Feb.

Remarks: If grown during hot weather the roots would be very tough and pungent. Sow on ridges 1½ ft. apart and 9 ins. high and irrigate immediately afterwards. Do sowings after intervals of 15 to 20 days to get a regular supply of tender roots.

Spinach (*Palak*)	20-25 lb.	P. Oct. to Nov. H. March. to end April	.5"	5-7 days	...	2"-3"	Nov. to Feb.

Remarks: Seed is sown broadcast and is lightly covered by a rake. Irrigate immediately after sowing and then after every 8 to 10 days. 3 to 4 cuttings are taken before the plants begin to develop seed-stalks in spring.

Turnip (*Shaljam*)	1-2 lb.	P. Local in Sept and exotic in Sept. to Nov. H. Feb. to mid-June.	.5"	7 days	1.5' 4'-5"	Oct. t March

Remarks: It is better to sow on ridges for better development of roots. Ridges are of the same specifications as for radish. When the plants are 2 ins. to 3 ins. tall, thinning should be done.

Tomato	1. Early crop 8 oz. 2. Main crop 4-5 oz.	P. 1. mid-July to mid-Aug. 2. mid-Aug. to mid-Sept. 3. mid-Oct. to mid-Nov. (Main crop) H. mid-March. to end May.	.25"	7-10 days.	3' 2.5"	1. Oct. to Nov. 2. Dec. to March 3. May to July

Remarks: Transplant seedlings of main crop in February when danger of frost is over. The fruit ripens when the weather warms up and is sunny. Seedlings are protected from sun by shading and are transplanted when 6 weeks old. If allowed to remain longer in the nursery they become laggy and do not transplant well. Staking should be done when the plants are 9 ins. to 12 ins. high. The plants must be protected fully from frost.

Harijan, 30-11-1947

GROWING OF HOT WEATHER VEGETABLES

Kind of Vegetable	Seed rate per acre	Time of sowing P. Plains H. Hills	Depth of sowing	Period of Germination	Distance apart after sowing, thinning or transplanting		period of availability of veg.
					Rows	Plants	
Bottle Gourd (*Lauki* or *ghia-kaddu*)	3-4 lb	P. March to July H. April end May.	.5"	5-8 days	8'	4'	March to Nov.

Remarks : Raised beds of width of 8 ft. are separated by furrows 2 ft. width. The seed is sown on both sides of the furrows which are used for irrigating the vines. The vines spread on the raised beds. For early crop, the seed is sown in October and the vines are protected throughout the winter by some sort of thatches. Four to five seeds are sown at each hill and later thinned to one per hill. For individual gardens, sow in round beds about 3 ft. in diameter. If sown near wall of house, will climb over roof.

Red Gourd (*Mitha Kaddu* or *Sitaphal*)	3-4 lb.	P. Feb. to July H. March to June	.5"	5-8 days	8'	4'	June onwards

Remarks : The cultural details are the same as mentioned in case of bottle-gourd. Unlike the bottle-gourd, it is usually picked when fully ripe and with penduncle (stem) on. It stores very well and can be had almost throughout the winter months and after June in the summer.

Songe-Gourd (*Kali-tori* & *Ghia-tori*)	3-4 lb.	P. March to July.	.5"	5-6 days.	8'	4'	May to Dec.

Remarks : Staking is necessary in case of second crop which should be done when the vines are 5 to 6 inches high.

Bitter-Gourd (*Karela*)	3-4 lb.	P. March to July	.75"	8-10 days.	2.5'	1'	May to Sept.

Remarks : The vegetable is grown for its bitter immature fruit. The fruit assumes orange-red colour on ripening and is not then fit for consumption as vegetable. Staking is necessary for satisfactory yields. The bitterness of the skin is removed by means of common salt to render the fruit fit to be cooked or fried as a vegetable.

Lady's Finger (*Bhindi*)	16-20 lb. for early crop, & 8-10 lb. for late crop.	P. March-end July. H. April mid-June	.5"	5-6 days.	2.5'	1'	April to Dec.

Remarks : The pods should be picked when tender as they cook well only in this condition. Picking should be done every second or third day. If the pods are allowed to ripen, the plants stop producing them.

Musk-Melon (*Kharbuza*)	3-4 lb.	P. mid-Jan. to end March	.5"	5-6 days.	5'	3'	May-June

Remarks : The crop needs hot and dry atmosphere during ripening period to develop the high sugar content and fine flavour. The plant is killed even by light frost. Four to five seeds are sown at one place on both sides of the furrow running through the raised beds. The plant and fruit must remain on dry land. Pick the ripe fruits in the morning. Water should be applied in the evening if the crop is sown on flat.

Long-Melon (*Kakri*)	3-4 lb.	P. mid-Feb. to end April.	.5"	5-6 days,	5'	3'	May-June.

Remarks : It is a much hardier crop than melon. The fruit is eaten raw like cucumbers. When soft and tender the fruit is covered with downy hair and is green in colour.

Water-Melon (*Tarbuz*)	3-4 lb.	P. mid-Jan. to end Mar.	.5"	5-6 days.	5'	3'		June-July

Remarks : The cultivation of first crop of watermelon is usually carried out in dry river beds, where the fruit attains large size and develops good quality.

Tinda	3-4 lb.	P. mid-Feb. to April, 2 June-July.	.5"	6-12 days	5'	3'		(1) June-July 2. Oct.

Remarks : It requires a dry and warm climate for its successful cultivation. Early crop is sown on raised beds of five feet width separated by 2 feet wide furrows for irrigation. Irrigate immediately after seed sowing and repeat it after every 8-10 days. The second crop is usually sown by broadcasting the seed. The field is watered till the vines are well grown.

Vegetable Marrow or Squash (*Vilaiti-kaddu*)	4-5 lb.	P. Feb. to mid-April H. mid-Mar, to mid-June,	.5"	6-12 days.	3'	3'		May to July

Remarks : The seed is sown on raised beds 4 to 5 feet wide with hills about 3 feet apart. Usually 3 to 4 seeds are sown per hill but when the seedlings are 3 to 4 inches tall thinning is done to keep one plant per hill. Irrigation is given every 4 to 5 days.

Sweet-Potato (*Shakar-kand*)	Propagated from cuttings. Vines from 2-4 'marlas' are enough for an acre.	P. April end June.	Vines are cut into sets having 3-4 buds each and the central portion is buried in the soil.	6-8 days.	2.5'	1'		Nov. to Jan.

Remarks : Ridges two to two-and-a-half feet apart are made for the sowing of sets.

Pursilance (*Kulfa-sag*)	3-4 lb.	P. mid-Mar. to end June.	.25" - .5"		6-8 days.	2.5'	1'	June to Oct.

Remarks: It is a pot herb with small fleshy leaves which are anti-scorbutic in properties. The seeds are sown thickly by broadcasting and are lightly covered with fine soil.

New Delhi, 22-11-'47 MIRABEHN

Harijan, 28-12-1947

89

FOOD, FODDER AND ARICULTURE

(1) Agricultural Improvement

The ways and means to improve India's agriculture are mainly: (1) To prevent fragmentation and to fix economic holdings; (2) Country-wide tapping and harnessing of our water resources; (3) Improvement of soil and its productivity through natural as well as scientific treatment of manures, seeds, crop-diseases, prevention of soil erosion etc.; (4) Co-operative effort; (5) State aid and protection; (6) Reclamation of waste-lands inland and along the sea-coasts and the creeks.

Each one of these subjects has been discussed threadbare time and again by experienced men who have devoted their lifetime to their study, without having an opportunity uptill now to put their suggestions and solutions to practical working. Though therefore, they are vital and important, I may not discuss them here beyond mere enumeration.

(2) Cattle, Fodder, Milk

The breeding of draught animals, which are the mainstay of Indian agriculture, must be encouraged on large-scale scientific lines. Laboratory experiments on Government farms or military establishments would not meet the urgent need. The present draught cattle with the Indian farmer are utterly uneconomic and a veritable burden. All promiscuous breeding must be prohibited and castration of all male calves, save those certified by the Veterinary Department as fit for breeding purposes, must be made compulsory by law, even like vaccination of children.

It will be news to many that unbelievably vast areas of private-owned lands, even in an agriculturally advanced province like Bombay, are lying waste. In only two out of the ten *Talukas* (Pardi and Bulsar) of the Surat district which is noted for its fruit orchards and gardening, 80,000 and 64,000 acres of private-owned lands grow nothing but grass, *babul* or brambles. It may be noted here that in these *Talukas* annual rainfall is about 75 inches. Besides. excellent rivers flow at distances of every 5 or 7 miles and empty out fresh water by millions of gallons in the Arabian Sea throughout the year.

In a neighbouring village the other day a visiting Government officer found that of the entire holdings covering some 1,200 acres, no more than 350 acres were under cultivation as against 851 acres consisted of grass lands only! These grass lands are not what is called the 'village common', i.e., pastures for village cattle to graze. Far from it, they are owned mostly by absentee landlords — the *Sowcars* who cut, cart and carry away every blade of grass duly bundled and baled for the Bombay stables! In spite of all the 'Grow More Food' Campaign by Government and other public agencies, these land-lords successfully contrive to make hay literally while the countryside starves and lives on depleting rations of foodgrains imported from America and elsewhere. They will not allow their tenants to grow on these lands food-grains — which none-the-less yield equal quantities if not more of fodder — lest they may have to share the produce with them and keep vigil during harvest to prevent pilfering! Millions of acres of such lands are lying waste in our country in the hands of such owners who pursue the proverbial 'dog in the manger' policy. These owners should be made to lease out their lands to landless peasantry on easy terms for growing food-grains, vegetables, etc. and irrigation facilities should be provided by Government. High prices of grass and tobacco have induced many landlords in the districts of Gujarat to by-pass the Government and convert considerable food-growing acreage into grass or tobacco growing areas in the teeth of Government

propaganda for food growing. This must be stopped effectively without delay.

While such vast grass areas abound in our province, milk is produced in the heart of cities like Bombay and sold at a rupee a seer and above. All stables in cities and suburban areas round Bombay, Ahmedabad, Poona, Sholapur, Hubli, etc., should be abolished and prohibited by law and cattle-keeping and rearing should be allowed only in rural areas in natural surroundings where grazing, stabling, credit and transport facilities should be provided by Government by pooling together, on popular lines, the resources of charitable trusts and institutions, intended for these purposes, such as *pinjrapoles, goshalas* etc.

(3) Reclamation of Coastal Lands

Thousands of acres of salty lands are lying along creeks in the coastal districts of Surat, Thana and Konkan. These have been washed off and gone waste but could be reclaimed under Government encouragement and help through a system of bunding, and would yield thousands of tons of coarse 'salt-paddy' as it is called. I think some years ago a survey was made to such an end in the Thana District by a special officer appointed by Government.

I also remember an instance in which years ago the whole adult population of a salt-making village in the Thana district, who were engaged in a labour dispute with the employers, embarked upon a joint venture of rebuilding an old bund as a constructive substitute for their enforced unemployment, and succeeded in reclaiming vast lands which were washed off by the creek and totally lost to the village for more than a generation. This first-rate constructive effort proved a guarantee against possible acts of violence, which the organizers feared, on the part of some of the idle strikers and a veritable boon to the whole village in as much as it brought an additional annual yield of several hundred *khandis* of 'salt-paddy' for the village to the permanent benefit of every family.

The problem, however, of reclaiming such areas may be said to be beyond the capacity of any private agency,

but under State initiative much could be achieved in the direction.

(4) Vegetable Growing

Our people's diet is hopelessly low and ill-balanced being highly deficient in fats, proteins and other nutritives. The grass lands above-mentioned can grow excellent fresh vegetables, in abundance, on which poorer people can greatly rely during certain seasons, as they do, for instance, on *mowra* flowers in the Panch Mahals or on jackfruit in parts of the Konkan. Today fresh vegetable is an item of luxury to be found in the menu of the well-to-do classes only. The growers market every ounce of their produce to the cities and towns where it is sold at 4 to 12 annas a lb. And yet the grower hardly gets 1 or 2 annas out of it, the lion's share going to the railways and the city broker or the middlemen. Years ago this writer had reproduced in these columns figures of sale proceeds against expenditure from the account books of a renowned garden owner of the province who faced virtual ruin having had to distribute as much as 87½ per cent of his income between the railway and the middlemen. Only a couple of years ago certain military camps near Wardha compelled village farmers to grow huge quantities of fresh vegetables for them but decamped suddenly to a distant front plunging that whole countryside in total economic ruin. I saw with my own eyes cart-loads of bewitching cauli-flowers selling at one pice a lb. for a whole season and bullocks being fed with maunds upon maunds of beautiful tomatoes which could easily compare with those seen in coloured advertisements in American journals. Only the other day I met a big grower of excellent vegetables in my own neighbourhood who supplied some few thousand lb. of fresh vegetables daily to the military establishments and then to Government ration-shops in Bombay, but who now finds himself — and along with him 11 small villagers whom he encouraged to grow — utterly stranded as a result of a sudden stoppage of Government purchase owing to a change of policy.

All this maladjustment must stop and wise planning follow which would protect the growers against such calamities. Village growers should be discouraged to grow for big and distant cities, but helped to cater local needs within the district and a fair return ensured to them by fixing minimum prices, as in the case of milk, for their undertaking to grow for well-defined restricted areas.

(5) Sewage Waters

In vegetable growing for big cities like Bombay, Ahmedabad etc., and for raising green fodder for city stables utilization of night soil and sewage water could be thought of with advantage. If drinking water could be brought to cities from distant catchment areas, the city sewers may be as well diverted for manuring and irrigating vast areas in distant suburbs. It may be relevant to say here that the Ahmedabad Municipality has been utilizing part of its sewage system in this manner for years and has been making a decent income. In Delhi, Allahabad, Karachi and elsewhere too, I think, this is done more or less.

SWAMI ANAND

Harijan, 2-2-1947

90

USEFUL HINTS

[The following excerpts are taken from Prof. Kumarappa's notes.]

Co-operative Societies

Co-operative societies are ideally suited organizations, not only for developing village industries, but also for promoting group efforts by the villagers. A multipurpose village society can serve a very useful purpose in a variety of ways such as :

(1) Stocking of raw materials for industries, and food grains needed by the village people.

(2) Marketing of village products and distributing the requirements of the people.

(3) Distribution of seeds, improved implements and tools, manures such as bonemeal, flesh, fish manure, oil-cakes, green manure seeds etc.

(4) To maintain a common stud bull for the area.

(5) To stand between the Government and the people in the matter of collection and payment of taxes etc.

Much of the wastage caused to food grains in transport and handling, and the expenses of collecting food grains to a central place and redistributing them again to the villages can be eliminated through the agency of a co-operative society which is a very reliable medium both from the Government as well as from the public point of view. If stocks of grain are held by co-operative societies in villages, the remuneration of local officials can be conveniently paid partly in kind, and this may facilitate the much desired system of collecting revenue also in kind.

Agriculture

The production of crops should be controlled keeping two considerations in mind. (1) The locality must try to produce its own food requirements and raw materials required for primary necessities of life in preference to commercial crops. (2) It must try to produce raw materials suitable for village industries rather than for factories, for example, instead of growing thick rinded sugar-cane or long staple cotton as demanded by factories, soft rinded sugar-cane as can be crushed by village *kolhus* for *gur*-making and short staple cotton as required for hand-spinning should be grown. The surplus land can be utilized to supplement crops needed by surrounding districts. Land utilized for sugar-cane of the factory requirements, tobacco, jute and other money crops should be eliminated or reduced to the minimum. In order to make the farmers adopt this policy heavy dues or excess land revenue should be levied on land used to raise money crops and that too after a licence has been obtained. This will give the farmers no incentive to go in for money crops in preference.

On the whole the prices of the agricultural products should be made to compare favourably with those of industrial products.

Commercial crops such as tobacco, jute, sugar-cane, etc. are doubly wasteful. They reduce the food production for man as well as for animals which would otherwise have got their fodder from good crops.

The supply of *gur* which may be reduced with the decline of sugar-cane crops of the factory varieties can be made good by the production of *gur* from palm trees now tapped for *toddy* or from those which are found or can be grown in waste lands in sufficient numbers as practically to meet our demand in this respect. The best land put under sugar-cane today can then be utilized for the production of cereals, fruits and vegetables which India needs so badly today.

Irrigation

The need for providing irrigation facilities to all the villages cannot be emphasized too greatly. This is the foundation upon which agriculture depends for its progress, in the absence of which it remains a gamble. A drive for sinking wells, enlarging and dredging tanks and building canals has to be launched. The power engines used in rice and flour mills now can be acquired by the Governments to pump up water from tube wells. No proper manuring can be done without water facilities, as manure in the absence of water is harmful.

Harijan, 12-5-1946

91

FARMYARD MANURE

The following extract, taken from the same Memorandum * testifies to the superiority of farmyard manure over chemical manure, at any rate in connection with the cultivation of millet and wheat — two staple foodstuffs of the Indian people :

"So far my investigations have not proceeded beyond the experimental study of the effect of certain manures on the nutritive value of millet and wheat. They are, unfortunately, very tedious and the output of work is limited by the limitations of a single investigator. The results already arrived at are, however, of interest. It has been found in regard to millet — a common food grain in South India — that the soil on which it is repeatedly grown, but which has received no manure for many years, yields a grain the nutritive value of which is so low that it may actually be harmful to the users of it, suggesting the acquirement by the grain of toxic qualities. It has been shown, moreover, that the nutritive and vitamin values of the millet grown on soil treated with cattle or farmyard manure are markedly superior to those of millet grown on the same soil when treated with a complete chemical manure. In regard to wheat it has been found that when it is grown on soil treated with farmyard manure, its nutritive value is approximately 17 per cent higher than when grown on soil treated with complete chemical manure. The deficiencies of the wheat grown under the latter conditions are due in the main to an inferior content of vitamin A, that substance which is so essential in maintaining the resistance of man and his domestic animals to infectious diseases."

* Lieut. Col. R. Mc Carrison's "Memorandum on malnutrition as a cause of physical inefficiency and Ill-health among the masses in India", 1926

" A Magnificent Food "

The following opinion, expressed by Lt. Col. Mc Carrison, will not but arrest the attention of the readers.

" Whole wheat, however poor it may be is a magnificent food ; it is better than cod-liver oil and marmite put together."

C. S.

Harijan, 5-10-1935

92

SOIL FOOD v. DRUG

In human nutrition people recognize the difference between staple food and drugs. Usually the staple food is eaten in large quantities and it contains all the elements necessary for the human body in the right proportions or nearly in the right proportions. Milk for instance contains fat, protein, calcium and vitamin A besides other similar ingredients. But if for any reason the body of a patient needs more vitamin A than is found in milk because of some diseased state of the body, then to meet this need vitamin A may be administered in the form of some liver products, such as shark liver oil or cod liver oil. We recognize, therefore, that an ordinary wholesome food differs from medicines. The medicines are administered in small doses according to the needs of the particular patient and his condition. An old man may take a different dose of medicine from that of a middle-aged one, the latter would need a different dose from that of a child.

Again, certain drugs are used as stimulants when individuals want to go beyond the energy provided by nature, for indulging in dances at night clubs. Such individuals stimulate their bodies to meet the extra demand of energy by taking injections of morphia and such other drugs. For the moment they appear to be full of vitality and energy, but a time comes when they suffer

from the reaction of the stimulants. Therefore, all persons desiring to lead a normal life without overstraining the nervous or muscular system will content themselves with a healthy use of energy produced by normal food.

Medicines are indicated in the case of the existence of pathological conditions, while stimulants are harmful to the body as they overtax the system. Thus the staple food, medicine and the drug, each has its own place and cannot be substituted one for the other. Food for the normal person, medicine for the sick person, and drug for the over-indulgent.

Similarly in plant life too we have these three stages. Plants like animals need food. They draw this food from the air and the soil through the medium of water. If the normal food that the plant requires is deficient in a particular aspect, that deficiency may be made good by a proper diagnosis and prescription. Also, plants can be stimulated like human beings with drugs too. But that is an unnatural situation. In nature much of the mineral substances needed by plant life is provided in some assimilable form by micro-organisms in the soil. These micro-organisms take organic matter and present it in an assimilable form fit for the plants. In the normal way the animals feed on vegetation and after assimilating that which is needed for energy and growth they pass out the rest back to the earth, and these micro-organisms in the soil convert such material back into plant food, and so goes on the cycle in nature. Any interference in this by men can only be justified by the circumstances.

The natural staple food of all plants is farmyard manure and other organic matter. Such manures have in them certain elements termed auxins which help better assimilation of the food just as vitamins in human food help in the biochemical process. The auxins are indispensable for plant life just as vitamins are indispensable for human beings, and farm yard manure and other organic matter are rich in these auxins.

Where the mineral contents of the soil may be deficient owing to flooding and washing away of certain mineral salts it may be necessary to supply that deficiency by introducing certain chemicals. But this is a process which is analogous to medicine to the human body. Just as medicines can only be administered by a qualified doctor after a careful diagnosis with a prescription suited to the particular condition of the patient, similarly this method of adding chemical fertilizers to the soil should only be adopted after a careful analysis of the soil and the requirements of plant life to be raised on that soil. Without such proper prescription given by a soil chemist, to freely use chemical fertilizers would be as foolish as a layman administering medicine to a patient, and it may be equally tragic in its results. Artificial fertilizers, therefore, are not plant food but they are medicines to the soil.

Just as the human system can be stimulated beyond its normal performance by drugs such as morphia, similarly plants also can be subjected to an unhealthy enhancement of their growth and production by the use of drugs. Chemical fertilizers can produce this effect; but it is an unhealthy, short-sighted and unnatural state of affairs.

If our agricultural food production is to supply the normal requirements of the human body, the plants from which we draw that food must also be healthy, normal and well-fed. Any artificial stimulant or artificial feeding will naturally affect our food as we depend upon, specially in our country, so largely on plant life as food. Hence it becomes imperative that we should watch the food given to these, the medicines administered and the drugs supplied. If there is any undue dose at any stage it will ultimately tell on the health conditions of the human being.

New Zealand grows most of its food supply on soils manured by chemical fertilizers and it was found that the people of New Zealand were subject to catarrh, influenza, septic tonsils and dental caries. Therefore,

Dr. Chapman of the Physical and Mental Welfare Society of New Zealand carried out some experiments in Mount Albert Grammar School Hostel and subjected over 60 boys, teachers and staff, to experimental feeding. The food was changed from the 'chemically grown' fruits, salads, and vegetables to articles produced on farmyard manure and he reports: "There is a marked physical growth and freedom from other common ailments, and their dental conditions have improved." It may be noted here that during the last war when young men were examined for recruiting, over 40 per cent of the New Zealanders were found to be unfit because of defective teeth. This experiment gives the warning that if the health of the people of India is to be what it should be, we must beware of chemical fertilizers. This is purely the point of view of our food.

Looking at it from the needs of the soil, chemical fertilizers increase the acidity of the soil. Parts of Bengal and Bihar have already suffered from this. To make the fertilizers effective, it is necessary to apply it at a suitable depth and not as a top-dressing. Application of manures at some depth involves deep ploughing and copious irrigation. In our country where the major portion of the land is subject to the vagaries of the monsoon it would be a pure gamble to plough deep and manure the land with expensive manures only to find at the end of the season that the rains have failed. Our farmers are not financially well off enough to take the risks of this type of land treatment.

As we have already indicated earlier, before artificial fertilizers can be used on any plot of ground a very careful analysis of the soil and its requirements have to be ascertained. This involves a wide spread, well trained expert staff of agricultural chemists who could function as 'soil doctors'. Before we have such a personnel available at every plot of cultivable land it will be sheer folly to put artificial fertilizers in the hands of the farmers. It will be like handing in poisons — drugs like opium, morphia, etc. — into the hands of ignorant patients

without any control as to their use. Therefore, even if we wish to introduce fertilizers as medicine, the condition precedent to such a course will be the introduction of agricultural chemists in large numbers. In our country we have not got physicians even for human beings in sufficient numbers. Where are we to find soil physicians in greater numbers?

With these facts before us we regret to notice that our ill-advised Central Government is pushing with the promotion and extension of artificial fertilizer factories. In Bihar at Sindhri, a scheme for artificial fertilizer factories involving foreign machinery to the extent of Rs. 12 crores and other buildings and equipment running into a further 10 crores are being pushed forward. We hope better counsels will prevail and the suicidal schemes will yield place to carrying on researches on more healthy lines which will provide a considerable amount of the organic matter, that is going to waste today, as suitable manures to our fields. Only such a course will provide us with health-giving food and save us from the unscrupulous exploiters who, regardless of the harm they are causing the people, consider accumulation of wealth the one and only objective in life.

J. C. KUMARAPPA

Harijan, 2-3-1947

BIGGER YIELDS, LESS NUTRITIVE VALUE

[The following appears as an editorial note in the *Vegetarian Messenger* of December, 1946. —V. G. D.]

Some investigations concerning the nutritional value of New Zealand spinach and the relation between bigger yields and nutritive value were recently carried out by the Department of Agriculture, Missouri. As in the case of ordinary spinach the comparatively large proportion of oxalic acid which it contains does not permit of its calcium being utilized. The results of the investigation showed that New Zealand spinach contains from 21 to 30 milligrammes of vitamin C per 100 grammes of fresh material, ordinary spinach from 40 to 100 milligrammes, and Kale, turnip greens and broccoli 75 to 200 milligrammes. The degrees of greenness in a vegetable, it was suggested, does not indicate any standard by which its vitamin or mineral content may be judged.

An interesting item in the investigation was that when New Zealand spinach was encouraged to grow in profusion by the addition of nitrogenous fertilizers, its vitamin C content was reduced. Comments upon this made in an Australian medical journal, suggest that "the ever-continuing search for bigger yields may be a matter of regret from the point of view of nutrition." In this country there is probably not sufficient evidence available at the present time to confirm this fact, but one thing is quite evident: where greens have been heavily fed with artificial fertilizers their size has been extraordinary, but their flavour has deteriorated very considerably. The 'forced' greens which we get early in the season also suffer from the same lack of flavour. As in the case of so many other food stuffs, the more we interfere (beyond a certain minimum) with their natural growth or 'make up' as in the case of whole grains, the less of their nutritive elements will we obtain.

Harijan, 13-4-1947

FOOD CRISIS AND SOIL FERTILITY

The present crisis is not directly due to the low fertility of the Indian soil. There are a number of factors which are responsible for the food-shortage. But the Government could really save the country from the crisis by taking steps, which it has failed to do, to increase production by applying manures to the soil. It is high time for the National Government to increase the crop production. If India can produce more cereals like paddy, wheat, *jowar*, *bajra* etc. which form the staple and most important ingredient of the food materials, the chance of a famine or a crisis will be much less. Many parts of the country depending on rice have always been substantially helped by the crops produced in Burma, Siam and other countries. In the Travancore State 367,000 tons of rice are annually imported as against 250,000 tons produced in Travancore. Bengal and Madras have also to depend a good deal on imported rice. Hence there is plenty of scope for the better production of those cereals which respond well to treatment by nitrogenous compounds.

The question regarding the exhaustion of the Indian soil has been repeatedly asked; but so far no satisfactory answer has been forthcoming. Dr. Voelcker in his *Improvement of Indian Agriculture* recorded the following results at Rothamsted (in England) in the case of wheat grown on fields continuously unmanured for over 50 years:

	Crop yield in bushels per acre
8 years (1844-51)	17
20 years (1852-71)	13.9
20 years (1872-91)	11.1 (1 bushel — 30 seers)

These results show that there is a slow deterioration of the unmanured fields at Rothamsted. Dr. Voelcker concluded that under existing conditions of agriculture, the soil of India must become gradually poorer.

On the other hand Howard and Wad in their *Waste Products of Agriculture* have stated as follows:

"A good example of such a system of farming without manure is to be found on the alluvial soils of the United Provinces, India, where field records of ten centuries prove that the land produces fair crops year after year without any falling in fertility. A perfect balance has been reached between the manurial requirements of the crops harvested and the natural processes which recuperate fertility."

G. Clarke (late Director of Agriculture, United Provinces, India) in his presidential address to the Agriculture section of Indian Science Congress, has stated the position in the following words:

"When we examine the facts, we must put the Northern Indian cultivator down as the most economical farmer in the world as far as the utilization of the potent element of fertility, nitrogen, goes. In this respect he is more skilful than his Canadian brother. He cannot take a heavy over-draft of nitrogen from the soil. He has only the small current account provided by a few pounds annually added by nature, yet he raises a crop of wheat on irrigated land in the United Provinces that is not far removed from the Canadian average. He does more with a little nitrogen than any farmer I ever heard of. We need not concern ourselves with soil deterioration in these Provinces. The present standard of fertility can be maintained indefinitely... In India, we have in existence at least a perfect balance between the nitrogen requirements of the crops we harvest and the processes which recuperate fertility."

It is well-known that about half of every crop the root system remains in the ground at harvest time and thus provides the soil with cellulosic and other carbonaceous materials. From our experimental observations showing that cellulosic and other energy-rich substances when added to the soil, cause marked nitrogen fixation, it can be concluded that from the exidation of the cellulosic and other organic substances, the nitrogen fixed on the

soil surface, supplies the plant need. The nitrogen need of crops in the tropical countries, can be met by the nitrogen fixed from air due to the energy liberated from the exidation of the cellulosic materials, left behind in the soil after harvesting. Moreover, the available nitrogen in rain water in the tropics is greater than in that of temperate countries. In the cold countries, chiefly due to the inactivity of Azotobacter caused by the low temperature of the soil and lack of sunshine, the cellulosic and other energy-rich materials added to the soil along with plant residues, are not oxidized as readily as in tropical soils and hence much nitrogen fixation is not possible in the soil of temperate countries. This explains the slow deterioration of the unmanured fields of Rothamsted already referred to. From the above observations, it seems that in the tropical countries, almost a constant yield of crop which is not high in unmanured fields, is possible, due to the addition of nitrogen to the soil by the fixation of atmospheric nitrogen, caused by the energy produced from the exidation of plant residues, left in the soil or added to it. Also the available nitrogen in tropical soils is usually over 10 per cent of the total nitrogen while in the countries having temperate climate, the available nitrogen is between 1 to 2 per cent of the total nitrogen. It is clear, therefore, that the amount of ammonium and nitrate ions, available in tropical soils for plant growth, is much greater than that available in cold countries, although the total nitrogen in cold countries, may be double or treble of that in the tropical countries.

Manuring Old and New

Manuring can be done in two ways : by adding nitrogen-rich substances, e.g. nitrates, ammonium sulphate etc. and secondly, by adding carbonaceous substances which may help in fixing atmospheric nitrogen. The fertility is due to the available nitrogen (as ammonia and nitrate) and it is by increasing the nitrogen content that the fertility of the soil can be raised.

As regards inorganic manures, the artificial manures like ammonium sulphate, ammonium nitrate etc. which

are likely to be manufactured in India, do not enrich the soil and increase soil fertility permanently. Most of these manures are lost as nitrogen gas without adding nitrogen to the soil. Hence, soils treated with such artificial manures may temporarily increase the crop yield but usually they deteriorate and their nitrogen content may fall off. On the other hand, organic manures like cowdung, farmyard manure, molasses etc., when added to the fields, not only add to the nitrogen they contain but the soil is also enriched by the fixation of atmospheric nitrogen. The value of cowdung or molasses depends chiefly on its power to fix atmospheric nitrogen. In Rothamsted no combination of artificial manures has been found to be so effective as farmyard manure, in steadying crop yield from year to year and there was an increase in soil nitrogen to about three times its original value when farmyard manure was used for more than sixty years : whilst with ammonium sulphate and soda nitrate, the soil nitrogen has a tendency to fall off with time. Similar beneficial results of organic manures over artificial nitrogenous compounds have been obtained with cowdung, molasses and leaves of plants in Allahabad and sunlight is actually utilized in increasing the nitrogen content of the soil, when treated with organic manures. The experiments at Allahabad have fully established the fact that nitrogen fixation may be a non-bacterial process and it can take place readily in the complete absence of bacteria but with smaller velocity.

In support of organic manures Dr. G. Ruschmann says :

> "The increase of soil fertility, which is the aim of all the modern scientific and practical efforts, cannot be attained by mineral manures. These by accelerating the breaking down of humus are actually detrimental. Increase of crop by improving the soil properties, and greater returns by addition of plant food are two different things, which are often confused. The latter can be effected by mineral manures which act immediately. On the other hand, to build up a good soil is a more

lengthy process. While it is relatively simple to maintain the fertility of soil rich in humus, it is difficult in a soil which is mainly mineral to build up the necessary humus. . . Directly or indirectly all plant and animal life is made possible by the soil humus. To its increase may be systematically employed all those organic materials which at present are virtually wasted. The greatest attention should be devoted to the albuminous or nitrogen containing organic rejects and residues of human and animal life."

The best manure, well-suited for this hot and poor country like India, is certainly farmyard manure (cowdung) or any substance rich in carbonaceous compounds e.g. molasses, leaves, plant residues etc. When these materials are not available in large amounts, they may be mixed with ammonium sulphate, ammonium nitrate or urea manufactured in this country. To purchase artificial manures from abroad is likely to be costly and the poor cultivator may not be in a position to purchase imported material.

Burning of Cowdung Criminal

As explained above cowdung or farmyard manure is definitely the best manure for increasing the soil properties and steadying the crop yield. If it is utilized properly, it may really serve as a boon to the poor Indian farmer by giving a rich return of steady crop-yield on a relatively cheap price. It is really a pity that cowdung being the most economic manure, the Indian farmer burns, knowing little that he is burning his own money. But the question arises as to what fuel should he use. Unfortunately, cowdung is the only fuel cheaply available to him. The Government in the past have totally neglected this important problem and seem to have no schemes even at present. Under a National Indian Government which propose to launch a thousand and one schemes for the improvement of Indian agriculture, steps must be taken to really better the lot of the Indian farmer by procuring some other fuel for his use and leave cowdung only for

manuring purpose. It may be useful to encourage tree-plantation or coal may be made available wherever possible.

It has been suggested that preparation of compost for use in the fields may be useful; but agriculturists all over the world find its preparation tedious and laborious and are, therefore, not anxious to take it up seriously. From our experiments on the fixation of nitrogen by the addition of green and dry leaves, paper, straw, etc. to the soil in fields, we are of the opinion that it is more profitable to add these plant residues to the soil before composting. When these plant residues are added to the soil and ploughed under before the rainy season, in three months, they are considerably decomposed and the carbon of the materials undergoes oxidation on the soil surface wih the liberation of energy necessary for nitrogen fixation. These plant materials, therefore, when added to the soil directly, not only supply the nitrogen, potash etc. they contain but can fix appreciable amounts of nitrogen on the soil surface and enriches the soil. If the plant materials are not in large excess, they are considerably decomposed and oxidized within three months after their application and the carbon-nitrogen ratio of the soil attains the normal value. The humus, the colloidal matter and the nitrogen contents are increased. The tilth, the moisture retention and the nitrogen conservation capacity are considerably improved. In composting the aim is to conserve the total nitrogen originally present in the materials and add it to the soil along with the carbon of the compost. In our method of adding the plant materials direct to the soil, not only the nitrogen present in the original material is added but a considerable amount of nitrogen increase in the soil takes place due to the fixation of atmospheric nitrogen. It appears, therefore, that the application of the plant materials direct to the soil is more beneficial than composting them because the high temperature and the sunlight available in tropical countries are helpful.

As a matter of fact inorganic manures are no good in improving the soil properties. However, they may be useful for getting better crops in the hour of need. It is no exaggeration to state that the standard of civilization of a country can be judged by the amount of nitrogen of the air fixed for the production of synthetic ammonia and nitric acid from the nitrogen of the air. It is pleasing to note that India is also going to have some plants for the manufacture of manure. But the Government ought to be aware of the fact that unless we can compete with sister countries like China and Japan in the production of manures, the fate of locally manufactured manures would be no better than that of *gur* (sugar) some years back. It does not sound economical and wise to establish a plant in Bihar and get raw materials (gypsum) from Rajputana about 800 miles apart.

The manures that can be manufactured in India are urea, ammonium nitrate, ammonium sulphate etc.

How to Reclaim

The chief defects of alkali land are :

1. The alkalinity. We have exampled several samples of bad *usar* lands and we find that the alkalinity is very high. Neither Azotobacter nor nitrite-formers are observed in cultures obtained with these soils.

2. The amount of calcium compounds is less in these soils than in normal ones. The amounts of exchangeable bases are less than in normal soils.

3. The nitrogen content is small. In several samples examined by us the total nitrogen varied from 0.008 per cent to 0.02 per cent; normal soils contain aproximately 0.053 nitrogen in tropical countries.

4. The soil is highly impermeable to water.

5. The soil particles do not settle readily when shaken with water.

6. Lacks bacterial activity.

It is estimated that the total area of *usar* (alkali) lands in the United Provinces alone is more than four

million acres. In the Punjab (Lyallpur, Montgomary and other places), Bihar, Mysore, Sind and Bombay, there are vast tracts of such unproductive land. Naturally the reclamation of these lands is a problem of great importance to India. The salts which make these lands unfit for growing crops are the carbonate, bicarbonate, sulphate and chloride of sodium. Sodium carbonate is chiefly responsible for the unproductiveness of such lands, which are generally heavy clay soils and are very often termed *parti* or waste lands. In Sind and in the other parts of the country, normal soils are being converted into alkaline ones by irrigation water. Moreover, there are vast tracts of sea-water-damaged lands in Bengal, Orissa, Gujarat, Bombay and Madras Presidencies. Due to various causes, mentioned above, the amount of alkaline land is increasing in India.

Regarding reclamation, the late Dr. J. W. Leather carried on experiments for the reclamation of alkali soils in different parts of the United Provinces (India). His conclusions are as follows:

1. The only experiment which can claim to have really reclaimed the *usar* land (alkali land) is the application of gypsum. The cost of sufficient gypsum to effect this was very great—about 700 or 800 rupees per acre—and is obviously prohibitive. Even if the cost of gypsum could be reduced to one-half, it would still be too expensive if required in the quantity that this land did receive it.

2. The effect of deep and good cultivation coupled with heavy manuring has not been either what is indicated to the unaided eye or what might have been anticipated. The surface foot of the soil has been apparently reclaimed, but below this this soil is as bad as ever.

3. Scrapping of the salts is practically useless. Recently Dr. Dalip Singh and Mr. S. D. Nijhawan have tried to reclaim *kallar* (alkaline) soil at Lyallpur, Lalakaku, Montgomery and the Bara farm by the application of a mixture of gypsum and calcium chloride, and achieved some success. They reported that the soil

permeability appreciably increases on this treatment after four years and the process of reclamation takes four years which is also the time required by the application of gypsum or powdered sulphur.

Molasses can also be used for this purpose. Alkaline lands have been successfully reclaimed near Cawnpore, Allahabad and in Mysore by the application of molasses at the rate of one to ten tons per acre and a good rice crop has been grown in these reclaimed areas where no vegetation ever grew. We have applied molasses in amounts varying from two to five tons per acre of alkali land at Soraon (near Allahabad) and at the Government Farm of Unao, and have obtained excellent results with rice. The Mysore Government has been able to obtain 1200 to 1800 lb. of rice grains per acre of alkaline land, using one ton of molasses per acre on plots where crops failed previously.

Research work carried on in Allahabad, Bangalore, Java, Hawai and other sugar-producing countries shows that molasses added to the soil along with carbonic acid and organic acids like acetic, propionic, butyric, lactic etc. are produced in the early stages in the decomposition and partial oxidation of the carbohydrates present in molasses. Consequently the acids present in molasses and those obtained from the decomposition and partial oxidation can neutralize the alkali of the soil rich in alkali. Moreover, the carbonic acid which is produced in large amounts from the decomposition and oxidation of the carbohydrates, can convert the sodium carbonate into bicarbonate. Also in the process of the escape of carbonic acid from the molassed soil, the latter is rendered porous and its tilth is improved. The investigations at Allahabad show definitely that the moisture content of the molassed soil is appreciably higher than that of the unmolassed one. The lime, which is added to the soil along with the molasses, is rendered soluble by the organic acids formed from molasses and is helpful in the conversion of sodium soil into a calcium one. Moreover the small amounts of sulphuric acid present in molasses convert

the soil calcium carbonate into calcium sulphate, which reacts with alkali and reclaims such soils.

Press-mud from sugar factories containing large proportions of carbohydrates and calcium compounds is also very useful in the reclamation of alkali and *usar* soils. Using one half to one ton of oil cake per acre, *usar* soils have been successfully reclaimed for rice cultivation.

DR. N. R. DHAR

[The suggestions contained in this paper are worthy of attention and adoption. I have no doubt that proper treatment and judicious use of our soil should allay all fear of dearth of food. —M. K. G.]

Harijan, 17-8-1947

95

FROM RUBBISH TO GOLD

Having settled down to a *kisan's* life for the purpose of understanding the problems of the villager, I have come to one definite conclusion, and that is that manure-making is one of the most important things we have got to tackle. The ordinary peasant makes no effort to prepare manure. Cowdung and small amount of rubbish are just thrown in a heap without any attempt to mix them together. The heap may be in a pit or on the level ground. During the monsoon it is left exposed to the rain and rots to some extent, after which it is scattered (and that unevenly) on the fields. In this way the minimum results are obtained from the material at hand.

The absence of manure in Indian villages is always ascribed to the fact that the major portion of the cow-dung is used for fuel. But even without drawing on the fuel supply, double the cow-dung could be collected to what is at present gathered up for manure. Much of it gets trampled into the ground under the feet of the tethered cattle, and still more is left about on the grazing grounds. If all this were saved, and the rubbish which eternally lies about in the farmyards and village lanes

were regularly gathered up and the two mixed properly together more than double the present quantity of manure would be produced, and its quality would be far superior

To tackle the production of this farmyard manure is a more urgent job than the settling up of big factories for manufacturing artificial fertilizers. Artificial manure needs big outlay in capital, machinery and experts, and for a long time it will reach only a very limited number of our seven lakhs of villages. It also requires careful application whereas farmyard manure needs no outlay of any kind. The materials are lying there waiting to be gathered up, the peasant with his ordinary tools can do all the work and throughout the world farmyard manure is acknowledged as the all round best and safest.

In Kisan Ashram I have started experiments in the simplest possible methods of manure making. I am not yet able to give exact figures and timings as the work is in its initial stages, but the procedure I am at present trying out is on the following lines: A shallow pit is dug 2 ft. deep, 22 ft. long and 10 ft. broad, (the length and breadth can be varied according to the daily amount of stuff to be handled). Each day grass, leaves and other light rubbish is collected and heaped near the edge of the pit; cow-dung and horse droppings are collected and heaped separately next to the rubbish. At the end of the day rubbish is spread in a thin layer over a little less than half the bottom of the pit and on top of that a thin layer of dung, broken up and sprinkled by hand. Thus one layer on top of another is spread according to the amount of material collected during the day. The last layer is always rubbish so as to protect the dung from sun and wind. Every third day water is poured on the layers sufficient to saturate them. When half the pit is full the manure is covered with a thin layer of earth and left for six to eight weeks, after which it is drawn to the other half of the pit. Care is taken to cut away the layers in thin vertical slices. When the manure is laid out thus in the other half of the pit, it is again saturated with water and covered with earth. After another six to eight weeks

the manure is examined, and, if it is sufficiently disintegrated, it is removed from the pit, piled on the ground and covered over with earth, ready for use when needed, otherwise it is drawn once more across the pit as described above. During the rains a roof should be put over the pit.

It will be difficult enough to induce the peasant to do even this much in his present untrained mental state. Anything more complicated would probably fail. But this method gives promise of being quite efficacious.

For obtaining full statistics in this kind of work variations in the method of production should be tried out, and two or three years of crop results should be studied. But I have put the matter forward without waiting to show these statistics because all those of us who are interested in such work should be co-operating in our efforts and sharing our ideas and reports of results. As soon as the new Provincial Governments begin to function, this is a matter which their Agricultural Departments should take up without delay and it is for us to be ready to come to their assistance with these simple, practical methods.

One reads of simple indigenous methods of manure-making in China where, from time immemorial they seem to have practised the art. And one hears also that the Chinese peasant gets four times the yield from his soil to what the Indian peasant does. At the same time the villages in China are swept clean, because everything in the way of rubbish is put into the manure pit. Here in India our villages are littered with debris from one year's end to another. All this rubbish can be turned into gold if we will but use it in the right way.

MIRABEHN

Harijan, 10-3-1946

96

WEALTH FROM WASTE *

The Madura Co-operative Sale Society was able in 1937-38 to secure from the Madura Municipal Council a contract for the disposal of night-soil and rubbish for a sum of Rs. 25,000. In previous years, such contracts had been taken by private individuals, who supplied the night-soil and rubbish to agriculturists from the surrounding villages on their own terms and made no attempt to treat the refuse scientifically. The price charged was Rs. 2-8-0 per cart-load of night-soil and Re. 0-12-0 per cart-load of rubbish. After framing a rough budget of working costs, the Sale Society straightaway reduced the price to Re. 1-12-0 per cart-load of night-soil and Re. 0-9-0 per cart-load of rubbish. The latter price was later on reduced to Re. 0-7-0 ; and it was found from experience that further reductions were possible, which unfortunately could not be carried out as the contract was not renewed for the year 1938-39. Notwithstanding the reduction in price effected, the Sale Society was able to have at its disposal a net income of Rs. 10,896 at the close of the year which shows the considerable measure of exploitation that was practised in the past by private contractors. This surplus will be available to the agriculturists, numbering as many as 276, who become members of the Society, in proportion to the purchases made by them. The rebate will mean a further reduction of roughly annas two in the rupee of the price paid.

The lowering of the cost of the refuse does not represent the Sale Society's main achievement. It set about investigating how best it could utilize the refuse so as to be able to supply manure to agriculturists cheaply, and in

* Based on an article on "The Co-operative Supply of Municipal Refuse in Madura" by Mr. G. G. Spitteler, Deputy Registrar of Co-operative Societies, Madura, published in the *Madras Journal of Co-operation* — Vol. XXX. No. I, July 1938

the least dangerous and offensive form. It tried the 'Indore Process' and found it a simple one. This consisted in spreading, on the floor of a wide shallow trench, alternate layers of rubbish and night-soil until there were three layers of night-soil between four of rubbish. The mixture was turned over two days after being thus charged. This process was repeated for two weeks, water being sprayed over the surface if it got too dry. After about four weeks, the mixture was suitable for being used as manure. Simple composts were prepared with one cart-load of night-soil and two cart-loads of rubbish, but though this preparation was inoffensive in smell and had manurial value equal to that of farmyard manure, its cost was prohibitive, being merely twice as high as that of farmyard manure. With the assistance of the Agricultural Chemist of the Government of Madras, the Society conducted various experiments and ultimately decided to mix rubbish and night-soil in the proportion of 4 : 1. It eliminated the expense of digging trenches and did composting by the heap method. It was thus able to bring down the cost of production from Rs. 2-8-0 to Re. 1-10-0 per cart-load. Not only were these tests in manurial value conducted in the laboratory, but the Society induced agriculturists to carry out the tests in their fields, thus assisting in the diffusion of scientific knowledge in rural areas. The other service was to convert the dangerous and offensive night-soil into an innocuous compost — no mean service when it is noted that under the private contract system the conditions prevailing in the villages in the vicinity of which the manure was being stored were filthy in the extreme. By regulating the use of the refuse the Society gave an object-lesson in the promotion of sanitation and cleanliness and in the safeguarding of public health.

V. L. MEHTA

Harijan, 20-8-1938

97

BEWARE OF BUREAUCRATIC PLANS

I

In September last, Reuter cabled from Washington that a mission headed by a British knight was visiting the United States, 'after five months' stay in England' in connection with the present irresponsible Government of India's project to set up a factory for the manufacture of 3½ million tons of ammonium sulphate yearly at an expenditure of 40,000,000 dollars or over 13 crores of rupees.

But no greater misfortune could perhaps befall the people of India than that their land should be poisoned with artificial fertilizers, the use of which has been condemned by British authority on agriculture themselves.

We must replace what we take from the soil. The harvesting of crops leads to the impoverishment of the soil which should be replenished by cattle dung and by ploughing in of grasses (See Joseph James' *Must We Starve*? distributed by F. Muller). But chemical fertilizers affect the soil in much the same way as drugs affect the human body. They produce temporary exhilaration, and then there is a relapse. Bumper crops are obtained but they cause new diseases and deficiencies in the soil. Balfour in *Living Soil* quotes from a circular letter sent by Sir Albert Howard:

> "In the South of France grapes are raised very largely by means of artificials: the many diseases are combated by poison sprays.
>
> "In Baluchistan on the other hand the vine is always manured with farm-yard manure; artificials are not used; the crops have no need for fungicides and insecticides, because diseases are practically non-existent."

British writers hold that crop diseases which are on the increase in England are due to artificials, James quotes from Lord Lymington who says:

> "Twenty years ago potatoes were sprayed with copper sulphate mixtures once or perhaps twice in a year, but now they are sprayed 12 or 15 times a season. Nearly all this is due to loss of organic manure for land and proper balance of farming" (*Famine in England*).

Chemical sprays affect the crops adversely and shorten considerably the life of the soil itself.

Lord Lymington is of the opinion that artificial manures are highly dangerous:

> "The processes of life depend as much on decay as on growth. Healthy growth can only take place when there has been proper decay of organic matter which becomes humus. This can only be brought about by the working of the soil bacteria. Reckless use of sulphate of ammonia, nitro-chalk, potash and other salts kills these bacteria and so the plant cannot remain healthy when there is no humus in the soil."

Animal and human diseases no less than crop diseases are caused by artificials. £6 a year is the amount of money spent in England per head on medicines, and the cost of animal disease is estimated at one-tenth of the farmer's total return from stock.

Foot and mouth disease is prevalent in England and the infected animals are sent to the slaughter house, stock movements being prohibited within a radius of 15 miles from the parts affected by the disease. But Howard testifies that his oxen in India fed on compost-grown food failed to contract the disease, even when "rubbing noses" with infected animals.

Balfour quotes from a correspondent who wrote:

> "Cabbages . . . . grown too fast with nitrate and phosphate are a curious 'wrong' colour. If over 50 p.c. of the green stuff given to rabbits is of this sort the rabbits die. If the phosphate goes beyond a certain point the field takes on an unnatural green and is

deserted by wild rabbits." Salesmen used this as a recommendation: "Use our soluble phosphate fertilizer and keep the rabbits away", or "Use enough nitro-chalk, and you will get big greens that rabbits will scarcely touch; if they do, they die."

It was found that cattle refused to graze in a field dressed with artificials.

Balfour also cites the case of a school which at first raised its vegetables with artificials and then with the Indore compost. The Head Master said that at first cold, measles and scarlet fever used to run through the school, but afterwards they tended to be confined to single cases imported from outside. There was also definite improvement in the caste and the quality of the vegetables.

McCarrison, when in charge of the Deficiency Diseases Inquiry in India, found that when wheat was grown on soil treated with farmyard manure, its nutritive value was 17 per cent higher than when grown on soil treated with complete chemical manure. Wheat grown under the latter condition contained a smaller amount of vitamin A, which is essential in maintaining the resistance of man and his domestic animals to infectious diseases.

McCarrison also found that 'if the vitamin B value of cattle manure millet be taken as I, that of chemical manure millet is approximately .66'.

V. G. D.

Harijan, 14-4-1946

98

BEWARE OF BUREAUCRATIC PLANS

II

Another item in these plans is the mechanization of agriculture. But as Lord Northbourne warns us in his *Look to the Land* (Dent), "mechanization can be a terrible snare, as it makes possible the kind of soil exploitation which has led to desert making on a scale hitherto unparallelled."

British farmers who have mechanized their agricultural operations have many lessons to teach us, and it is up to us to profit by what they themselves admit to be their mistakes.

For one thing the machines are too heavy for the maintenance of soil health. Lawns deteriorate when a motor lawn-mower is used.

The many-shared plough works too fast. With a single-share ox or horse-driven plough it took quite a number of days to finish a big farm. Flocks of birds alert for grubs and worms followed the plough. But what took quite a week before is now done in a single day, so that birds have no time to clean the soil. British farmers therefore complain of serious increase in wireworm.

But the loss in soil cleanliness is only half the story. The loss in humus is still more disquieting. The horse or the ox never moved over a field without enriching the soil. The motor tractor moves over the field but gives nothing. Five lakhs of horses have been eliminated from the British army and from British towns during the last twenty years with the result that a million acres of land in Britain get no dung and there is a corresponding loss of soil fertility.

The plant-animal-man cycle has been broken in England in a variety of ways, and the consequences have been always bad. As Michael Graham points out in *Soil and Sense* (Faber) the British housewife limits the size of her family, thus throwing shepherds out of work and reducing

farmers to bankruptcy. The number of sheep is down by one million a year, so that although Britain badly needs wheat, there are not enough sheep to tread and manure the soil.

In fact, so-called scientific farming is too exhaustive and therefore ultimately destructive all over the world, as for instance in Egypt, where "the soils have steadily deteriorated with the introduction of a more efficient technique" (*Rape of the Earth*).

Mechanized farming in England also called for the wholesale destruction of hedges which according to E. B. Balfour is responsible for the increase in insect pests, for "with the hedge has gone the shelter for the small birds who prey on insects." Fields in England were formerly small. There was an abundance of hedge-rows and frequent trees which did much in the windy climate of Britain to "maintain the soil in position and to increase its productivity.". . . . . But the size of the fields is now enlarged in order to accommodate modern farming machinery.

Such being the experience of British farmers, may it not be that the failure of the United States to supply us with even 500 tractors while she is delivering 50,000 tractors to Russia and 20,000 more to France is only a blessing in disguise?

Two years before A. E. died, the Government of the United States invited him to come and see what was wrong with agriculture. The apparatus had been perfected, but workers were refusing to carry on. A. E. found excessive organization had destroyed the soul of the thing; machinery so intruded between man, soil and beast that man could not bear work any longer.

Let us bear in mind these wise words of Lord Northbourne:

> "The very best in farming as in all other crafts can only be produced by hand, and less than the best will not do."

V. G. D.

Harijan, 14-4-1946

ARTIFICIAL PRACTICES IN AGRICULTURE

It has now become an accepted maxim that for the maintenance of health what is needed is not merely good looking food but healthily grown food. The latter depends on soil health. Just as the quantity of flesh on a person's body is no indication of his health, the size and yield of the crop is no guarantee of its health-giving quality. Artificial manures might produce prize crops in respect of yield and the size of the grain, but the food thus raised is found to be lacking in certain vital principles and animals fed on it show signs of ill health and malnutrition. To the controversy of artificial versus natural manure a valuable contribution has now been made by Friend Sykes, a highly successful Wilkshire farmer in *Humus and Farmer* (Faber).

Two years ago Farmer Sykes began rearing cows, pigs and race horses that won national fame. A long run of achievement, however ended with disaster.

"To show the way to other breeders," says the *News Review* "his champion herd of black and white Freisian cattle was submitted to the then new tuberculin test. Two-thirds proved to be diseased, although their milk yields had been phenomenal. Convinced that the trouble was due to crops grown with artificial manures and to the feeding of 'concentrates' instead of natural foods, he sold out.

"Buying Chantry, highest farm on Salisbury Plain's eastern end, Sykes started again in 1936 with a new 'natural' system. Of his thin, poor and rabbit-infested acres a friend said: 'This is not farmland — it is just space-out-of-doors.' But in fewer than ten years the black down land yielded mammoth crops, champion beasts.

"No factory cattle foods, no artificial manure, was Sykes' rule. Early disease on the farm was defeated

by ploughing, which brought about health-giving fertility. Subsoiling 2 ft. down released valuable minerals which deep-rooting plants brought to the surface. New methods of haymaking and harvest improved fodder with startling effects on the large livestock population.

"Most important of all, Friend Sykes used humus (scientifically rotted animal and vegetable refuse) to manure his land. The highly complex bacterial life of the soil was enriched, instead of poisoned by chemicals.

"The fashionable approach to soil is not biological but chemical," objects Sykes. "One hundred years of interested propaganda by vested industrial interests has pushed to the fore this 'artificial' view." He contends that artificial manure produces food "which reduces vitality so low that resistance to disease is becoming less and less."

According to him, "we are approaching the greatest of all menaces that have ever faced civilization — the day when soil fertility in almost every country will be a thing of the past."

Here are Sykes' views on other artificial practices which threaten to contribute to this impending doom:

"Artificial insemination may prove to be one of the most mischievous practices that so-called scientific agriculture has ever dared to play with.

"Sewage emptying into the sea is scandalous and abominable wastefulness. It should return to the land.

"Artificially dried grain often will not make bread. Sterility in women coincides with the introduction of the white loaf. Nothing is so important to man than that he should speedily return to the consumption of the whole wheat bread.

"Burning straw instead of ploughing it back into the soil is one of the most heinous crimes any farmer can commit.

"Many farmers keep cows indoors closely tied by the neck for five months in the year, feed them with

concentrated foods the cow's digestion was never intended to cope with, and then expect the beasts to keep healthy."

New Delhi, 14-10-'46

PYARELAL

Harijan, 10-11-1946

100

THE FORD TRACTOR v. THE HAND-PLOUGH

At Lorenzo Marques, a commercial traveller from America got on board, who was going out to India, in order to sell Ford Tractors.

"What are you going to sell Ford Tractors for, in Calcutta?" I asked him.

He told me, with some pride, that one of his tractors could plough up as many acres, in half a day, as the ordinary plough with bullock would take weeks to accomplish.

"Yes," I said to him, "I know all about that: for, I had to use a Ford Tractor myself once in a flooded area, where the cattle had nearly all been drowned, or lost by the flood, and the land was getting caked hard by the burning sun."

This interested the American commercial traveller immensely, and he was eager to know where the place was, so that he might go and get some orders for his Ford Tractors.

While I told him the name of the place, which was in North Bengal, I also told him the story of what had happened on that occasion. This area between Santahar and Potisar was 1,500 square miles in extent, and it was absolutely necessary to get the part, where I was working, ploughed over before the soil became too hard. I had gone out one morning, after a slight fall of rain, on a day when the land was in an ideal state for ploughing, and as I looked around from a small piece of rising ground, over

miles and miles of country, I could see only six plough engaged in the work!

When I asked the villagers what had happened, I was told that the flood had done such damage to the cattle that only a very few oxen were available.

It seemed to be a hopeless situation, since the ground was becoming as hard as bricks under the burning heat of the sun and the ploughing work had to be finished quickly.

So we got a Ford Tractor down from Calcutta, and, with a disc-harrow instead of a plough, it cut through the black soil on the surface at a tremendous pace without going too deep. The work was rushed through in a marvelously short time. The villagers flocked to see the new monster at work demolishing the surface. They could get no work to do themselves, however, because the machine only needed two mechanics to keep it going.

The commercial traveller's eyes glistened as I told about these wonderful deeds of the "Ford Tractor". He had hardly noticed my last significant sentence!

But when I went on to tell the story of what happened later he listened much more carefully and remained thoughtful. I told him how the landlords of the District wanted me to leave the Ford Tractor with them, for the ploughing work of the future, and not to send it back to Calcutta.

"No," I replied, "certainly no! On no account would I do such a thing! Just for this flood disaster, it had its use but when the oxen are restored and normal times come back again. . ."

"What then?" asked the commercial traveller eagerly.

"Why, then," I replied, "*I should have no use for the Ford Tractor*! It would turn out at least fifty families off the land, who are now healthily employed. It would drive them into the Jute Mill close to Calcutta. Can you contemplate a worse fate than that?"

This last question I put to the commercial traveller, while we were seated alone on the deck. He looked into

the calm blue sea, through which we were slowly making our way Everything was quiet except for the swish of the water, as we went forward. It was a time for confidences, and he turned to me.

"No, Sir!" he said, "I have got a conscience! and I must confess to you that, when sometime ago I saw the Yang-tse-Kiang valley, where the Chinese Villagers are growing rice, I felt it would be a crime to introduce Ford Tractors there!"

"Well," I said to him, "the valley of the Ganges is as thickly populated as the valley of the Yang-tse-Kiang! Would you be ready to introduce your tractors there?"

"No," he said "you have convinced me. I have been a commercial traveller in Russia and I have gone as far as Siberia. That is quite a different proposition; for, the population is so thin on the land that the soil goes half cultivated, or not cultivated at all. But no one can beat the hand cultivation of the valleys of China and India; and to drive the people off the land, who have lived there for centuries, would be nothing less than a crime."

C. F. ANDREWS

Harijan, 14-12-1934

101

SOIL EROSION

The appalling floods in the Mississippi and Ohio valleys, which are likely to cost the United States of America more than 1,000,000,000 Pounds, could have been prevented, if there had been an absence of ruthless exploitation of the soil by the use of huge agricultural machinery and an equally ruthless cutting down of forest timber in order to supply the paper mills with wood pulp. Modern civilization has carried out vandalism on such a vast scale that the devastation caused by barbarian armies in the past (from whence the name 'Vandal' was derived) was literally as nothing in comparison. The importance of this great subject is only very gradually be-

coming recognized. In the long run it carries with it far greater significance than many of the political and social efforts which we place in the foreground of our national programme.

This truth first came home to me, with a misery that I can never forget, owing to the floods in the delta of the Mahanadi, which devastated Orissa. Every single inquiry which we made at that time pointed to the deadly harm that had been done, in the upper courses of the river and its tributaries, by denuding the land of its covering of forest trees, which held the excess of water till it sank into the soil. One lesson I learnt by heart, namely, that there would be no true remedy against future floods until the old course of the Mahanadi was conserved by a Conservation Board which would deal with its flow in its upper reaches and not with the delta only.

In a very important article, in *The Spectator* of Feb. 12, Mr. G. B. Jacks declares that soil erosion, leading to gigantic floods, is taking place not only in America, but also in South and East Africa, and in India and Australia. He calls it Nature's revolt against modern civilization. Either nature will win outright in the end and a much larger surface of the globe will become barren, or else man will learn to modify and curb his own wasteful habits. "The onset," he writes, "of soil erosion is insidious, and often not noticed until the land is already so ruined that reclamation is impossible. The desolation produced by soil erosion has to be seen to be believed. Comprehensive, scientific planning, with land salvation as its objective is now the only choice for countries that are most affected." He mentions India among them. He adds the words: "Men have dreamed of a prosperity dominated by helicopters, hygienic clothing, sky scrapers, etc.; but present indications show that, perhaps, the first really scientific civilization will be based on more prosaic things, such as contour terraces, afforestation, dams, and above all the maintenance and improvement of grass."

At Santiniketan, we have anxiously traced the rapid increase of soil erosion drawing near to our own Ashram. The same effects were already being made visible on the daily journey which I took last November between Wardha and Segaon, across this open country. Evidently, each monsoon is taking its toll of its good soil and washing it away. Surely in India here is a fruitful field of research, waiting for some lover of the soil to explore it thoroughly. One of the very first lessons, and perhaps the greatest of all, will be this that only by a return to simplicity of living and by putting back into the soil those chemical substances which we take out of it for our daily food, can we live in harmony with Nature, and help, instead of hinder, her beneficial work.

C. F. ANDREWS

Harijan, 27-3-1937

102

SALT AS MANURE AND CATTLE FEED

As in the case of salt used for human consumption, so in the case of salt used for agricultural purposes as manure there has been a marked decline as a result of the imposition of the salt tax.

Mr. Robertson who was appointed by Government to report upon agricultural conditions in Coimbatore observed in the course of his report:

> "Salt has long been used for promoting vegetation. It is of the greatest value as a manure in inland countries. . . It has been ascertained by direct experiment that the lands near some coasts receive annually as much as 300 lb. of salt per acre carried to it by the winds. Salt is generally used as an auxiliary manure with lime or other manures. In England as much as 600 lb. of salt per acre is applied with other manure to land intended for Mangold Surtzel, and for meadow land a usual top dressing is 200 lb. of salt with 100 lb. of nitrate of soda. Heavy dressings of salt are some-

times applied to pasture land to improve the herbage and kill insects injurious to grass."

The same was testified to by Sir Thomas Bernard, Bart in his evidence before the 1888 Select Committee on Salt Duties in England. Quoting from a letter from Mr. Bevin of Chester, he described the results of an experiment made on a farm "overrun with coltfoot and other weed". of strewing on it ashes from salt works. The account concluded :

"The effect on the corn crops, besides destroying the weed completely was very great. I do not exaggerate in saying that on the part of the field on which this manure was laid, the crop was nearly treble in proportion and the grain of excellent quality".

The following figures of the issue of denatured salt will show how our agriculture is starved of the necessary manure :

1914-15	2644 mds.
1915-16	2655 „
1918-19	Suspended on account of shortage.
1919-20	175 mds.
1920-21	402 „
1922-23	772 „
1925-26	2407 „

In cattle the salt hunger obtains in such an intense form that cattle often resort to human or animal excreta by the wayside to satisfy it.

"I marvelled very much at this abnormal appetite", observes Ratton in his Handbook on Salt, "but subsequently finding that such cattle were depastured on poor grass without any salt whatever either in their natural food or in the crude state, I seized to wonder, for these excrements happen to contain an appreciable amount of salt and are often rich in it. The consequences of the habit are most dangerous".

Ratton goes on to describe how it gives rise to the disease of hytids, and how herds of cattle perishing therefrom had been saved by the liberal use of salt "not that

salt is in any sense a remedy but it is a prophylactic or preventive of the disease."

That the scarcity is the direct result of the salt duty will be seen from the following from the evidence of John Crafford of the Bengal Medical Service before the Select Committee on Salt in British India. (1836) ;

> "It is a constant argument used by the Board of Customs against an infringed consumption of salt in Bengal that salt neither is, nor ever will be used except for mere elementary purposes. This is not strictly correct even as applicable to the present state of things. A good deal of salt (not indeed nitrate of soda, for that being highly taxed cannot be used for such a purpose, but of other impure and untaxed substitutes) is given to horses, horned cattle and even to sheep ; pure salt, and in considerable quantity, would no doubt be given if it could be afforded".

PYARELAL

Harijan, 19-5-1946

103

THE CASE FOR THE BULLOCK

Now that machinery threatens to overrun our agriculture and transport as a part of so-called planning, it is necessary to sum up the case for the bullock who is doomed to destruction if that threat materializes.

We must have milk, more milk and still more milk. We must therefore have cows, and if we have cows, the bullocks will be always with us, for whom we have to provide and can provide full employment only if we yoke them to the plough, to the cart and to the *ghani*. If we fail to do this, we shall be reduced to the same plight as the Western nations who slaughter all bull calves except a few which are reared as stud bulls.

The tractor is a machine ; the bullock also is a machine, though not so powerful as the tractor. But the bullock is a living machine, and contact with such harmless animals has been a potent factor in the onward march

of human civilization. I am not sure that the elimination of animal power and the installation of lifeless machinery in the Western countries has not something to do with the brutalization of human nature to which frequent and fierce wars bear witness in common with other evils peculiar to the West.

This is the humanitarian argument, which must be reinforced by the economic argument. We shall now deal with this latter, and in doing so make free use of a chapter in Shri N. G. Apte's *Thoughts and Work about Villages* entitled "Economics of the Bullock" (Published: Shri Sardesai, Samarth Bharat Press, Poona 2).

The bullock is not only a living tractor; it is also a living fertilizer factory and gives us farmyard manure which supplies nitrogen and improves the porosity of the soil, thus helping to increase the moisture content of the soil as well as proper aeration. These three factors are essential to plant growth. 'No amount of concentrated manure would help if the porosity of the soil and consequent aeration of the soil are not improved.'

Artificial manures are an unmitigated curse, as has already been shown in these columns. Then there is green manuring with *sann* hemp and other leguminous plants, but that too compares unfavourably with farmyard manure. For, the green manure occupies the soil for a season from the time of planting till it is sufficiently decayed, but cannot be fed to the animals. On the other hand if we grow a fodder crop instead of the green manure on the same piece of land, at the end of the season we would get fodder enough for two animals. These animals would work for us the whole year and give us the fodder back in the form of manure better adapted for assimilation by the soil, with probably some additional nitrogen derived from metabolic processes of the animal body.

Most of the nitrogen taken from the soil will be returned in the dung as the bullock requires only carbohydrates for work. These carbohydrates are no good as a manure as most of the carbohydrate material in the crop is fixed from the atmosphere during the process of meta-

bolism in the plants and is not drawn from the soil. Thus the bullock utilizes the energy which is wasted when a green manure is ploughed into the soil. Then again farmyard manure feeds the soil better than the green manure, having passed through the animal system and thus having been acted upon by decomposing agents present in that system.

The bullock's function as the manufacturer of a first class fertilizer is not the only point where it scores over the machine. For, no machine ever invented can perform the various duties that the bullock discharges. The bullock can work fast as well as slow. It can not only be yoked to the plough, it can be used in crushing the earheads as well as in carting the grain to the market. All this it does, while subsisting on the straw or the cake left after the grain and the oil have been utilized for human consumption. This oil too is extracted by the same animal. A pair of bullocks costs a few hundred rupees, but if it is supplanted by machinery, the farmer must go in for an oil engine, a motor truck, a tractor, small motor-driven harrows and what not, which would cost him goodness knows how many times as much. Then again he must purchase fuel in the shape of oil, which cannot be produced not only on his own field but even in his own country.

The main agricultural operations of ploughing, harrowing, sowing and interculturing keep the bullocks busy for only three or four months in the year. During the rest of the year they can be and should be used for carrying goods as well as passengers, for crushing oilseeds and so on. The bullocks are capable of doing all this, while the specialized machinery would remain idle during the long dull season.

Extraction of oil by machinery is profitable on the face of it, but the profits reappear on the debit side of the cultivator's account, with nothing on the credit side to counterbalance the debit.

We shall close with a final quotation from Shri Apte's valuable study :

"Machinery may be introduced when the existing man and animal power is fully occupied. At present this power is not fully utilized, and therefore there is no occasion for the introduction of machinery."

V. G. D.

Harijan, 14-4-1946

104

DEVELOPMENT OF DUAL-PURPOSE CATTLE IN INDIA

The term dual-purpose, in its general sense, means the breeds which from their point of view, can serve two distinct purposes. In India, the breeds of cattle, the male of which are suitable for draught and female for milk, are known as the dual-purpose types.

There has, of course, been a great deal of controversy going on among livestock breeders regarding the advisability of attempting to develop dual-purpose type of cattle in India. This question has been engaging the active attention of the breeders and those interested in the amelioration of our cattle but it was brought to the forefront by the publication of the report of the Royal Commission on Agriculture in 1928. Since then two definite schools of thought have been evolved. In order, therefore, to view the whole question in its correct perspective, it will be more helpful to briefly repeat here the points of view of both the sides.

Those who hold that the cattle in India should be developed for specific purposes and not on dual-purpose lines contend that:

(1) Indian cattle, as a whole, have been bred from times immemorial, for special purposes. As a general rule, the fastest and best working breeds of cattle are not good milkers, and high milk yield is not compatible with capacity for fast work. Thus the two factors of milk and draught do not go hand in hand.

(2) In dual-purpose cattle advance in either direction has periodically to be checked by the necessity to consider the other factor. Therefore, there must always be a tendency for both qualities of milk and draught to remain at a comparatively low level. In any attempt to develop dual-purpose type, sacrifice of one factor to develop the other will reduce the standard of our cattle to mediocre sorts of animals and thus either quality at its best will be inadequately represented. In order, therefore, to evolve cattle with a high standard of excellence it will be necessary to develop cattle for special purpose alone.

(3) From breeding point of view progress in the production of highly efficient draught or dairy type of cattle would be much faster if only one factor was to be aimed at. Genetically, it is very difficult to breed successfully for a combination of two or more characters at one time, even when the characters are not mutually antagonistic. Simplification of characters in breeding has always resulted in more certain and quicker fixation of desired characters. Without concentration on one main factor, sustained advance to a high standard is not possible.

(4) In India, the primary need is bullock for draught, and in attempting to secure more milk from the draught cattle there is a danger that the qualities, which in the past, have commended them as work animals may be lost.

(5) Countries which aim at nothing better than dual-purpose type cannot hope to compete with countries in which strict specialization is insisted on and therefore any such step which will affect adversely the standard of special purpose breeds should be avoided.

On the other hand, the case of those, who are in favour of the development of Indian cattle on dual-purpose lines, may be summarized as below :

(1) In India the number of cattle is already so large that any attempt at segregation of utility points may result in breeding of still larger numbers. Thus a

cultivator will have to maintain different animals for different purposes, one animal for production of males suitable for draught and the other to meet his milk requirements. This will necessarily mean keeping of a larger number of cattle than the land can economically maintain.

(2) The Indian cultivator is so poor that he cannot afford to maintain larger heads of cattle. What he needs is a type of cow capable of producing a fairly strong male suitable for farming operations on his land and supplying, in addition, reasonable quantity of milk for the requirements of his family. Thus, it should be one animal which should serve both the purposes.

(3) With all the cattle, on the average, half the calves born will be males and of those a very small proportion will be fit as stud bulls. If different breeds are kept for different purposes the male calves of the milk types will not be comparatively useful as at present is the case with our best dairy types such as Sahiwal and Red Sindhis, whereas in the case of dual-purpose breeds the male can be reared for draught. Thus, in India, where both draught and milk factors are essential, the dual-purpose stock for ordinary cultivator is more economical than that bred for specific purposes.

A cursory glance at the above points of view will be sufficient to show that, as in many other such controversies, there is a great deal of truth on both the sides. These are, in fact, two sides of the same picture. For me it is very difficult to visualize a flourishing cattle industry in any country, without special breeds for specific purposes and dual-purpose breeds existing side by side.

Great Britain, on the whole, is an industrial counrty ; yet we find some of the most special type breeds as well as dual-purpose types in that country. All such types exist side by side and flourish. They have some of the finest breeds of cattle for special purposes and still by far the most numerous breeds are those which show dual-purpose characteristics such as Short Horns, Dexter and Red Polls.

In India, the combination of milk and draught qualities does not present the same difficulty. Both these types are spare of muscles and body-fat, and the food they consume and digest is mostly returned in the form of milk or work. Mr. William Smith has even gone so far as to say: "You cannot possibly produce the very best class of draught bullock out of anything but a really good milking cow. The ability to produce milk is the strongest proof of maternity and the more efficient and perfect the dam, the more vigorous and healthy the offspring." This, of course, is to be followed with a bit of caution. From my personal observations, I feel that we can safely develop a reasonable amount of milk into some of our draught breeds without damage to their work qualities but, there is a limit in each breed, beyond which we cannot develop a particular character without adversely affecting the other. Thus, as a general rule, to be followed in the production of draught cattle, the Royal Commission on Agriculture has opined that 'milking qualities should be encouraged only in so far as these are entirely consistent with the maintenance of the essential qualities which good draught cattle must possess. This can, of course, be easily attained by proper selection of strains suitable for each tract from among the existing breeds.

In India we have some of the best known draught breeds such as Hissar, Amrit Mahal, Kangayam, Nagore and Bhagnari, while Sahiwal and Red Sindhis are the best milk types. The work so far done on these milk breeds has clearly shown that high yielding strains of indigenous dairy breeds can be produced in a comparatively few years which can compete favourably with any best known dairy breeds in the world. The achievements of Pusa and Ferozepur Sahiwal herds are too well known to be detailed here. Then we have also dual-purpose breeds, such as Hariana, Tharparkar and Gir. Recent work on Hariana has shown that although basically a draught breed, it possesses special milking potentialities. On the other hand, although individual cows of Gir breed are capable of giving high milk yields yet the bullocks are

powerful and strong workers. Gir bullocks may not be agile and quick as Hariana, and Hariana cows may not be as good yielders as Girs, but both possess a combination of characteristics, which are really suitable to the requirements of an average cultivator. Such animals have definite economic value and they will be the most popular in those tracts where they can thrive. Thus, in my opinion, in India, as in all other cattle breeding countries, there is enough room for the development of distinct types as well as dual-purpose cattle. Special types are recommended for those tracts where natural facilities of food and grazing exist for the development of those specific purpose cattle, while for the average cultivator who is too poor to maintain such specialized strains on account of his limited resources and shortage of feed, the dual-purpose animals are most suitable.

Before concluding, I must, however, draw the attention of the readers to the fact that there are large numbers of cattle in India, which are not only poor yielders but their bullocks are also of poor quality. Here, no mistake should be made on that account. Such breeds are not dual-purpose and therefore, while planning for cattle development distinction should always be made between dual-purpose breeds and no-purpose breeds. Such animals need special attention and all possible measures should be taken to grade them up by use of improved stud bulls.

(Sir) DATARSINGH

Harijan, 23-6-1946

105

TRACTORS v. BULLOCKS

Tractor cultivation is a controversial question. Some people consider mechanization of agriculture the ideal goal for India, and some would not so much as look at a tractor.

There is a middle path during the development period.

In U. P. there are 79 lakhs acres of actually culturable waste lands. Much of this vast area is *usar* land which has become very hard, and in some cases needs extra deep cultivation in order to break up the *kankar* layer below the surface. There are other waste lands covered with tall deep-rooted grasses, and yet others especially in the terai, where even shrubs and small trees have to be uprooted.

For many years the cattle population of India has been deteriorating, and with the recent war, it has become alarmingly reduced owing to wholesale slaughter of animals for feeding the foreign armies (English and American), and prisoners of war. This means that, today, to try and deal with waste lands by means of bullock power would be so slow a process that it would be as good as useless We have to overcome long years of administrative neglect in as short a space of time as possible, if we are successfully to stop the rot which is steadily undermining our countryside.

I would, therefore, advocate the use of tractors for bringing waste land under cultivation where it is situated in large blocks and is otherwise suitable. But after the land is reclaimed, I would not for a moment suggest that it should remain permanently under mechanical cultivation. The bullock is in every way economical for the Indian peasant. The bullock is fed from the products of the land, and gives in return valuable cowdung which is

used for plastering of walls and floors, for fuel and for manure. The bullock can also be used for all kinds of work — carting, water-lifting and the like, whereas the tractor has to have expensive oil purchased for it from the bazar and it gives nothing back from its belly. At the same time the only kind of haulage it can do, is field cultivation on a broad outlay.

When we have developed village groves for fuel-wood, we do not want to find that cow-dung has been greatly reduced owing to the removal of the bullock from village cultivation. On the contrary, we want to find masses of cow-dung released for the impoverished Indian soil. Anyone who is familiar with Indian village life knows the part which cow-dung plays. Without it the whole village dwelling structure and economic life would become broken down.

So it comes to this, that tractors be used for big scale reclamation and, during the years that these lands are being brought into a good cultivated condition, every effort must be made to control and improve the breeding of the present herds of cattle in the province, so that ever-increasing quantities of good bullocks become available for cultivation purposes (See next chapter).

Before closing this note, I would like to express a word of warning regarding tractors. At present the tractors are being obtained from abroad. This means that spare parts, extra to those supplied, will be difficult to get and very expensive. At the same time expert engineers and mechanics are very difficult to find in India today. This means that before any big scheme is handled, men must be thoroughly trained for taking up the job, and local workshops must be provided at the spots where the reclamation work is to be taken up.

The implements are the most troublesome part of tractor cultivation, as they frequently break or get out of order, and if we are to look to foreign countries for both the implements and their parts, tractor cultivation is bound to be a failure. Anyway, it would be a blot on

our own Swadeshi zeal as a Province if we fail to turn out tractor implements, which can be manufactured in India.

MIRABEHN

Harijan, 29-9-1946

106

CATTLE WEALTH

No scheme of land and village development in India can be successful, unless the cattle problem is vigorously tackled. Cows and bullocks have suffered very heavy casualties during the war, having been ruthlessly butchered for feeding foreign armies and prisoners of war. This has reduced to a most critical condition the already pitiable state of the country's cattle.

Cattle cannot be bred in a day, and four to five years must elapse before we can expect any visible result. It behoves us, therefore, to take up the matter without delay. But unfortunately delay is the order of the day in the country.

Government servants have, therefore, to take up this cattle development in a new spirit, if it is to succeed. And, if it fails, then all other rural development fails with it.

A project has been passed by the Central and Provincial Governments to be financed on a half and half basis, which envisages the organization of the *goshalas* in the Provinces for improved cattle breeding. If this scheme is properly worked, great strides can be made in the right direction.

MIRABEHN

Harijan, 29-9-1946

107

CATTLE IMPROVEMENT

The following is the gist of a long article by Sardar Datar Singh. He says that inasmuch as India is primarily an agricultural country the improvement of cattle means nothing more nor less than the development of agriculture. India possesses over 29 per cent of the world's cattle population and yet the production of milk per capita is very low. It works out at 7 ounces per head per day here as against 56 and 45 respectively in New Zealand and Australia. 20 to 30 ounces per day is the minimum required according to dietary standards so that our output would have to be more than trebled. The average quantity of milk yield per cow per year is only 750 lb. which too is sadly below standard. The root cause of this low yield is malnutrition. Against the total estimated annual requirements of 270 million tons roughage and 50 million tons of concentrates only 175 and 3.75 million tons are available respectively. In addition there is wastage in storing, drying, harvesting and preparation of food and fodder.

1. The Sardar makes the following suggestions in regard to proper feeding:

(a) The cultivation of fodder crops must be increased by encouraging cultivators to put more acreage aside for this purpose. The most nutritious and high yielding fodders should be cultivated and in addition a number of perennial grasses can be introduced, such as Elephant, Guinea, Rhodes as also leguminous crops, e.g. Berseem and various types of beans which make good mixture with non-leguminous crops.

(b) The conservation of fodder crops and elimination of waste through silage, also improved methods of drying fodder.

(c) The provision of good and ample grazing areas. Grazing lands having diminished greatly in area, it is imperative to adopt some system of controlled grazing

on existing lands. Pastures available on canal banks can also be utilized with advantage.

In this connection the Sardar emphasizes the importance of utilization of land under forests. It has been estimated that 107 million acres of land is under forests in India as compared to 362 millions of cultivated land. Very little use has been made of this vast forest wealth. For example, out of about 33 million head of cattle in the U. P., only about one million make any use of these grazing areas. The number of cattle in the whole of India is 97 million out of which 8½ million only may be said to be using forest pasture lands. Plans are afoot which visualize doubling of the present forest area in terms of square miles of forest in British India. The theory that opening of forest areas will have a destructive effect on plantation is quite incorrect. Experiments have shown that grazing in itself when properly regulated is not only not an evil but will even " allow the vegetation to follow out its natural progress towards an ecologically higher type of plant community." The systematic planning of forest lands for grazing on economic and scientific lines is, therefore, a vital necessity.

2. The question of judicious breeding is of very great importance. For this the Sardar suggests :

(a) The supply to each area of a requisite number of bulls of a breed suited to the locality concerned. Caretakers should be appointed to put these animals in an enclosure in the evenings and the villages concerned should be responsible for their feeding. The caretakers should preferably be trained stockmen who can render first aid to the bulls as well as assist in case of cattle epidemics.

(b) The castration of undesirable bulls.

(c) An increase in the number of stud bulls which is ridiculously below India's requirements.

The need is at least one million and if these have to be replaced every four years, as they should be, it means that a quarter of a million bulls have to be supplied every year. This would necessitate the maintenance on special

breeding farms of no less than 600,000 cows and 10,000 bulls but as this is neither feasible nor economically sound, the Sardar suggests making full use of the existing organizations and institutions such as *goshalas* and *pinjrapoles*. If properly reorganized this could, at a very conservative estimate, provide 25,000 stud bulls annually as well as the same number of bullocks and 50,000 improved female calves every year.

3. The control of contagious diseases is of great import. Over 30 million cattle die annually from rinder pest, haemorrhagic, speticaemia, black quarter and anthrax. Strict attention should be paid to both preventive and curative measures. The average villager should not only be educated in the care of cattle but proper medical aid should also be made available to him.

New Delhi, 27-9-'46 A. K.

Harijan, 13-10-1946

108

INDIVIDUAL or COLLECTIVE ?

The most important question for consideration before the recent Go-Seva Sangh Conference was whether cow farming should be in the hands of individuals or done collectively. I myself had no hesitation in saying that she could never be saved by individual farming. Her salvation, and with her that of the buffalo, could only be brought about by collective endeavour. It is quite impossible for an individual farmer to look after the welfare of his cattle in his own home in a proper and scientific manner. Amongst other causes lack of collective effort has been a principal cause of the deterioration of the cow and hence of cattle in general.

The world today is moving towards the ideal of collective or co-operative effort in every department of life. Much in this line has been and is being accomplished. It has come into our country also, but in such a distorted form that our poor have not been able to reap its benefits. *Pari passu* with the increase in our population land hold-

ings of the average farmer are daily decreasing. Moreover what the individual possesses is often fragmentary. For such farmers to keep cattle in their homes is a suicidal policy ; and yet this is their condition today. Those who give the first place to economics and pay scant attention to religious, ethical or humanitarian considerations proclaim from the house-tops that the farmer is being devoured by his cattle due to the cost of their feed which is out of all proportion to what they yield. They say it is folly not to slaughter wholesale all useless animals.

What then should be done by humanitarians is the question. The answer obviously is to find a way whereby we may not only save the lives of our cattle but also see that they do not become a burden. I am sure that co-operative effort can help us in a large measure.

The following comparison may be helpful :

(1) Under the collective system no farmer can keep cattle in his house as he does today. They foul the air, and dirty the surroundings. There is neither intelligence nor humanitarianism in living with animals. Man was not meant to do so. The space taken up by the cattle today would be spared to the farmer and his family, if the collective system were adopted.

(2) As the number of cattle increases, life becomes impossible for the farmer in his home. Hence he is obliged to sell the calves and kill the male buffaloes or else turn them out to starve and die. This inhumanity would be averted, if the care of cattle were undertaken on a co-operative basis.

(3) Collective cattle farming would ensure the supply of veterinary treatment to animals when they are ill. No ordinary farmer can afford this on his own.

(4) Similarly one selected bull can be easily kept for the need of several cows under the collective system. This is impossible otherwise except for charity.

(5) Common grazing ground or land for exercising the animals will be easily available under the co-operative system, whereas today generally there is nothing of the kind for individual farmers.

(6) The expense on fodder will be comparatively far less under the collective system.

(7) The sale of milk at good prices will be greatly facilitated, and there will be no need or temptation for the farmer to adulterate it as he does as an individual.

(8) It is impossible to carry out tests of the fitness of every head of cattle individually, but this could easily be done for the cattle of a whole village and would thus make it easier to improve the breed.

(9) The foregoing advantages should be sufficient argument in favour of co-operative cattle farming. The strongest argument in its favour is that the individualistic system has been the means of making our own condition as well as that of our cattle pitiable. We can only save ourselves and them by making this essential change.

I firmly believe too that we shall not derive the full benefits of agriculture until we take to co-operative farming. Does it not stand to reason that it is far better for a hundred families in a village to cultivate their lands collectively and divide the income therefrom than to divide the land anyhow into a hundred portions? And what applies to land applies equally to cattle.

It is quite another matter that it may be difficult to convert people to adopt this way of life straightaway. The straight and narrow road is always hard to traverse. Every step in the programme of cow service is strewn with thorny problems. But only by surmounting difficulties can we hope to make the path easier. My purpose for the time being is to show the great superiority of collective cattle farmig over the individual effort. I hold further that the latter is wrong and the former only is right. In reality even the individual can only safeguard his independence through co-operation. In cattle farming the individual effort has led to selfishness and inhumanity, whereas the collective effort can abate both the evils, if it does not remove them altogether.

Sevagram, 8-2-'42 M. K. GANDHI

(From *Harijansevak*)

Harijan, 15-2-1942

INDEX